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Paper Mill Now Manufacturing New Plastic

Consolidated Water Power & Paper Co. Starts Production of An Improved Paper Base Plastic Expected To Equal Aluminum — Building of Test Sulphite Liquor Plant Deferred — Other News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 17, 1942—Manufacture has been started by the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., of an improved paper base plastic equalling aluminum in tensile strength on a weight basis.

Perfection of the process was announced last week by Carlisle P. Winslow, director of the United States Forest Products Laboratory at Madison, Wis., which collaborated with Consolidated in the project. Details have been released only to manufacturers and processors sanctioned by government war agencies.

The McDonald Aircraft Company, St. Louis, is using the product for experimental production of structural aircraft parts, including wing ribs, wing tip skins and control surfaces. Army and navy officials are giving it consideration as a substitute to alleviate growing shortages of other materials.

The new plastic has twice the strength of any other so far produced. It can be molded into desired shapes at temperatures and pressures and on equipment now used for making plywood. It is resistant to moisture and remains extremely stable at both high and low temperatures. It is more resistant to scratching and denting than aluminum and has a smooth surface eliminating necessity for special finishes and coatings.

An added advantage is that the plastic will not be corroded by salt water, and if pierced by bullets will not spinter, tear or flower out. There are prospects it can be devoted to special needs, including water craft ranging from small boats to large cargo vessels and hulls of flying boats.

Defers Erecting Test Liquor Plant

Construction of a proposed pilot scale plant for the disposal of waste sulphite liquor has been withheld for the duration of the war by the War Production Board. It was to have been built at the Interlake Pulp and Paper Company division of the Consolidated Water Power and Paper Company at Appleton, Wis., by the Wisconsin Sulphite Pulp Manufacturers Committee on Waste Disposal.

The plant was needed to test on a semi-commercial scale a process which researchers employed by the committee had developed during the last two years, and which appeared to have promise of materially reducing the pollutional strength of sulphite liquor.

In denying the application, WPB pointed out that while it was in complete sympathy with the objective involved, that of cleaning up lakes and streams, continued success of the war production program demanded that every pound of critical material produced be diverted from civilian use into military channels.

The sulphite committee has a number of other processes under investigation. J. M. Conway, chairman of the committee and president of the Hoberg Paper Mills, Inc., Green Bay, Wis., says the committee will continue to prosecute its research program to the fullest degree consistent with the interests of the present national emergency.

New Consolidated Dam Nearly Completed

With construction of the Du Bay dam on the Wisconsin River at Knowlton, Wis., practically completed, the Consolidated Water Power and Paper Company last week began impounding water behind the 11 huge gates. About 160,000,000 feet were required to bring the stream flow two feet above the rollways so as to retain the normal river level for hydroelectric plants further down. All but one of the gates are competed and this will be protected by a "needle" retaining wall until the concrete has been solidified.

Complete filling of the huge reservoir will be deferred until the generators and other equipment are installed and the power plant is ready for use. The water level will then be 18 feet above the rollways, and the river level back of the gates will be ten feet above the level at which it was retained during construction. The eventual height will be 26 feet above that mark.

The combined dam and powerhouse are 820 feet in length, and extend 60 feet in depth at the maximum point from bedrock to the top of the dam. The powerhouse will contain four generating units, three of 2,000-kilowatt capacity and the other 1,500-kilo-

(Continued on page 24)

Canada Denies Shortage in Certain Papers

Prices and Trade Board Through Administrator of Book and Writing Papers Issues Statement Correcting View of Shortage In Some Book and Printing Papers — Other Concerns Issue Comments.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 17, 1942—The wartime Prices and Trade Board, through the Administrator of Book and Writing Papers, has issued the following statement correcting the view that there is a shortage in certain classes of printing and book papers:

"Waste of any kind, particularly in wartime, is to be deplored. But a public misconception exists with regard to the use of any advertising on Book, Bond or Writing Paper. There is no shortage of such papers, nor will the war effort be impaired by their use."

The situation has been further explained by the Howard Smith Paper Mills, Limited, which manufactures many varieties of fine papers. It notes that although up to the end of February demand for fine papers was largely in excess of productive capacity, there is now a definite falling off trend, with backlogs being rapidly eaten up, and prompt shipments may soon be possible. The easing up in the tight supply situation has developed almost as speedily as it started.

Future Is Unpredictable

Whether this relief is permanent is anyone's guess, says the report for while at present there are plenty of raw materials, manpower, and transportation facilities, there is no assurance that the paper industry can retain its present share of them.

The company summarizes its own position as follows— ". . . While there is at present no shortage of most of things from which we manufacture paper, and there is, with the exception of certain goods made from rags at Beauharnois, adequate machine capacity for some time to come, we still advise that paper be purchased conservatively, and that it be used insofar as possible for the furtherance of war effort by supporting the armed forces through increased efficiency of munitioning and supply, and by maintaining civilian health, morale and productive capacity."

Edison Co. Makes Statement

The Thomas A. Edison Company of Canada, Limited, has also issued a statement on the subject in its house organ "Voice Writing." Under the heading "The Paper Paradox" it says:

"The mistaken belief that there is a shortage of printing paper in Canada has concerned almost every business executive. Not only have most businesses explored ways of saving on the use of such paper, but its use has frequently been criticized as unpatriotic. Now, paper manufacturers declare that there is no shortage of printing paper in Canada; there is no shortage of materials for making it; and there is no shortage of manufacturing capacities. On the other hand, they maintain that the salvage of scrap paper remains a national necessity. For readers of Voicewriting, we pass along the following explanation of the paradox.

"The paper industry is not one industry, but a group of industries of which the printing paper industry is but one part. Each part consumes different materials and serves different needs. All are not similarly affected by the war.

"The paperboard and kraft paper industries have been strained in their utmost effort to supply packaging materials for both military and civil requirements. These are the industries that use so much scrap paper material. Their needs gave rise to warnings of a potential shortage of paper. The warnings did not specify which divisions of the paper industry might or might not be affected. Hence, users of ALL classes of paper began to anticipate future needs. Demand for all classes of paper soon exceeded production capacities, and an artificial shortage was thus created. Even manufacturers of printing paper were deceived by this artificial shortage.

"Accumulated inventories tied up capital and floor space in printing establishments, and restrained buying so that demand has now fallen well below the production capacities of book paper mills.

"In the light of this, the continuance of the paper salvage campaign may seem confusing. Old papers, however, are only a minor source of materials for book papers. They are a major source of pulp for making paperboard. Since paperboard is much needed for war purposes, salvage of scrap paper is still rightly urged."

Fire Damages Sutherland Warehouse

KALAMAZOO, Mich., August 17, 1942—A disastrous fire occurred Wednesday of last week in the Standard Drive Section warehouse of the Sutherland Paper Company on North Pitcher street. It has cost one man his life and has sent five others to local hospitals.

Flames, believed to have been caused by spontaneous combustion, first were discovered about 3:52 Wednesday afternoon and were not brought under control until after 3 o'clock Thursday morning.

Loss to contents and building was not estimated by company officials. However, Glenn Graham, vice president and production manager, said the structure contained $80,000 worth of material, including paper and chemicals. Officials added that some of the paper could be salvaged and some of the building repaired, but that a greater part would be lost.

Victim of the fire was Harvey Kuiper, 32, Route 4, Cooper Center, father of four children, who was crushed under heavy bales of paper shortly after 12 that morning when the northwest section of the warehouse steel siding gave way. He was an employe of the Sutherland Company, and was serving as a volunteer fireman.

The Sutherland warehouse fire was the second serious conflagration within a week in Kalamazoo. Last Friday morning lightning struck the Kalamazoo Stationery Company paper storage plant at Factory street and Reed avenue, starting a fire that destroyed the building and most of the contents.

Chicago Hopeful of Early Buying in Fall

Expected Severe Curtailment In Advertising and Merchandising Dims Prospect of Substantial Renewal of Trade Demand Soon — New Sources For Sale of Paper Are Now Studied — Other News.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 17, 1942—Recognition of the fact that advertising and merchandising are going to be seriously curtailed during the War has caused local paper jobbers to seek new sources for the sale of paper. Threats that Washington may curb merchandising events, "fashion shows," etc., have all combined to force this realization. As a result, while business in the advertising papers is very slow, there is quite a bit of preparation activity which comes from results of research into new fields. Krafts were unchanged during the week, with demand reported at low ebb, while sulphites were also plentiful as inventories were shaved off only very gradually. Groundwoods were reported as very dull. Newsprints were inactive and bonds and ledgers at the bottom of the demand list as buyers tried to figure out buying trends for the near future. Some hope came in reports that merchant inventories were shrinking rapidly and that stocks taken by buyers during the Spring "buying spree" were now at such a point that renewed buying "might take place in early September."

Paper Board Industry Reported Improved

A compilation of reports in this area shows that the paper board industry is closer to "normal" than it has been for some time. Accumulations of waste paper have slowed down and mills are reported to have absorbed the recently huge stockpiles of paper into organized inventories. Paper stock is being taken from suppliers at this time as it is shipped to them while the flow of raw material into dealers yards is said to be sufficient to keep the yards operating at near capacity. Civilian business is said to be better although the Chicago Journal of Commerce said "it was small." The government has placed more orders arising from the fact that the government specifications for packaging materials have been relaxed in many instances. More and more food manufacturers are using waxed containers for packing purposes, saving critical war materials and considerable sums of money previously invested in metal containers. Local reports say there has been no move by the Western Paperboard Association to effect "a blanket price increase" although some small dealers are said to be paying a bit higher prices for paper stock. The feeling is prevalent that the market is approaching normalcy and by late Fall the waste paper industry expects to be back in good shape.

Masonite Head to be WPB Counselor

Ben Alexander, president of the Masonite Corporation of Chicago, has been appointed to work closely with all War Production Board agencies in the handling of lumber supply matters. The WPB has described shortages of lumber supplies as "critical" and has stated that the total military and essential civilian lumber requirements this year would run about 6 billion board feet beyond anticipated production. Mr. Alexander will cooperate with the armed services, the maritime commission, the OPA and other agencies to insure that essential lumber requirements are filled. WPB pointed out that the lumber situation had grown more serious recently because of problems of labor supply and as a result of increasing demands for wood as a metal substitute.

Says Tax Threats Stop Paper Plans

A Chicago paper product manufacturer, L. J. McWain, treasurer of the Universal Paper Products Company, told the Senate Finance Committee this week that his firm had designed a collapsible paper substitute for metal tubes for tooth paste, shaving cream and other items but that "his firm didn't feel like going ahead because corporation taxes might take 90 per cent of any profits. He pointed out that the company was formed in 1936 and made no money until 1939. Hence, he said, the firm could claim only a low credit against excess profits taxes of 90% in the revenue bill.

August Golf Outing To Be Finale

The elimination of the Fall meeting of the National Paper Trade Association as a 1942 feature of the Chicago paper year, has focused unusual attention on the next golf outing of the western division, Salesmens Association of the Paper Industry. With the big Stevens Hotel turned over to the Army and the paper trade ready to forego its big convention because of war conditions, the outing at the Bob-O-Link Golf Club on August 21 will wind up the golf season with the past September windup events only a pleasant memory. Ray George, golf chairman, reports that the August outing will be as much as possible like the September affair. Extra emphasis will be placed on attendance, prizes and all the "trimmings" which have made the September events a big entertainment feature of the N.P.T.A. meetings. These plans were all discussed at the August 9 meeting of the Western Division which was otherwise given over to a round table discussion of business conditions.

Attack "Shortage" Myth

Chicago paper jobbers who got the Byron Weston Company recent treatise on the so-called paper "shortage" are loud in their praise of the wording of this statement. "You many continue to entrust your valued records to the paper that is made and recommended for the purpose," says Byron Weston, "that paper possesses and, so far as we can foresee, will continue to possess the strength and resistance to time and use on which you are accustomed to depend. In any case, consult your regular source of supply before initiating or approving changes in paper quality, quantity, color, size or weight. Don't listen to those who in ignorance of the true facts or for their own temporary advantage, urge you to "grab anything you can get."

War Time Packaging at TAPPI Meeting

The fall meeting of the Technical Association of the Pulp and Paper Industry (Statler Hotel, Boston, Mass., September 29-October 1) is to be devoted in its entirety to considering ways in which the industry is contributing to the War effort.

Of prime importance is the great amount of work being done to develop new containers made of paper and cellulose materials to replace the critical metals and other materials that are no longer available.

On Tuesday, September 29 a full day session will be devoted to wartime packaging subjects. Following is the tentative program:

1. Opening Remarks by R. A. Hayward, President TAPPI
2. Paper Has Some New Packaging Jobs by C. W. Browne, Editor, Modern Packaging
3. Protective Coatings for Containers and Wraps (Speaker to be announced)
4. Packaging Dehydrated Foods by Charles Watson III, Dry-Pak Corp.
5. Ration Container Problems by Capt. Robert R Melson, U.S.Q.M.C., Subsistence Research Laboratory
6. Folding Carton and Fibreboard Substitutes for Metal Containers by J. D. Malcolmson, Robert Gair Co.
7. Replacement of Metal Containers by Use of Cellulose Sheeting by J. D. Rankin, DuPont Cellophane Co.
8. An Engineering Approach to the Solution of Packaging Problems Involving M.V.T. Resistance by J. F. Halladay, American Coating Mills Co.
9. The Use of Urea—Formaldehyde Resins for Waterproofing Starch Used in the Production of Solid Fiber and Corrugating Board by Philip B. Taft, American Resinous Products and Chemical Co.

Paper Products Exhibit

The Technical Association of the Pulp and Paper Industry in connection with its fall convention (Statler Hotel, Boston, Mass., Sept. 29-Oct. 1, 1942) will have an exhibit showing the progress being made by various industries in substituting containers made in whole or part of paper or paperboard for materials essential to the war effort.

Any company that is doing its part in aiding the National Government in this way is urged to show its old and new containers or wraps in this exhibit. No charge will be made to any exhibitor since the Association is financing this exhibit as a public relations policy to help bring to the attention of the public the story of how industry arises to the occasion in times of national stress.

Sales executives of companies that have any container or other paper product to show are welcome to assist in this industry public relations job and should write immediately to R. G. Macdonald, Secretary of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York, N. Y., for details.

Transportation for TAPPI Fall Meeting

Due to the tire and gasoline shortage many people will wish to use the public transportation systems for traveling to the Fall Meeting in Boston on September 29, 30 and October 1.

Fortunately, few cities can be reached by train or bus more easily than Boston. Three railroads and several bus lines have their terminal point there.

The Boston & Maine Railroad, with its beautiful modern North Station, provides the outlet for Northern New England and has excellent connections to Montreal, Quebec and Maritime Provinces. This road also has sleeping car connections to Northern New York via the Rutland Railroad and to Chicago over the Fitchburg Division and via New York Central.

The Boston & Albany Division of the New York Central, with South Station as its terminal point, operates many crack trains through to principal Western cities and also runs trains to New York City through Springfield. The New England States Express, which is the B. & A. counterpart of the Twentieth Century, is a deluxe train running from Chicago to Boston in twenty hours. This train also carries through sleeping cars from Pittsburgh to Boston. The New England Wolverine follows the North Shore route from Chicago to Boston and also carries sleeping cars from Detroit. The Southwestern Limited provides service from St. Louis and Ohio points.

The third railroad is the New York, New Haven and Hartford, also using South Station for its terminal. This system operates fast service between Boston and New York, with trains leaving hourly from each point. It also provides through service and connections for Philadelphia, Baltimore, Washington and Southern points.

Several bus lines provide service to Boston. Of these, Greyhound has through service from New York and Chicago.

Railway fares to Boston are reasonable. Some of the rates are given here as a matter of interest.

Albany to Boston	—$4.45 in coaches	—$6.65 in Pullmans
Buffalo to Boston	—10.95 in coaches	
	—16.40 including lower berth	
Chicago to Boston	—33.73 including lower berth	
Detroit to Boston	—24.93 including lower berth	
St. Louis to Boston	—40.10 including lower berth	
Toronto to Boston	—20.18 including lower berth	
Watertown to Boston	— 8.45 in coaches	—$12.70 in Pullmans
New York to Boston	— 5.05 in coaches	— 7.60 in Pullmans
Philadelphia to Boston	— 7.95 in coaches	— 11.45 in Pullmans
Washington to Boston	—15.85 including lower berth	
Bangor to Boston	— 5.45 in coaches	— 8.15 in Pullmans
Halifax to Boston	—23.90 including lower berth	
Montreal to Boston	—11.05 including lower berth	
Quebec to Boston	—13.35 including lower berth	

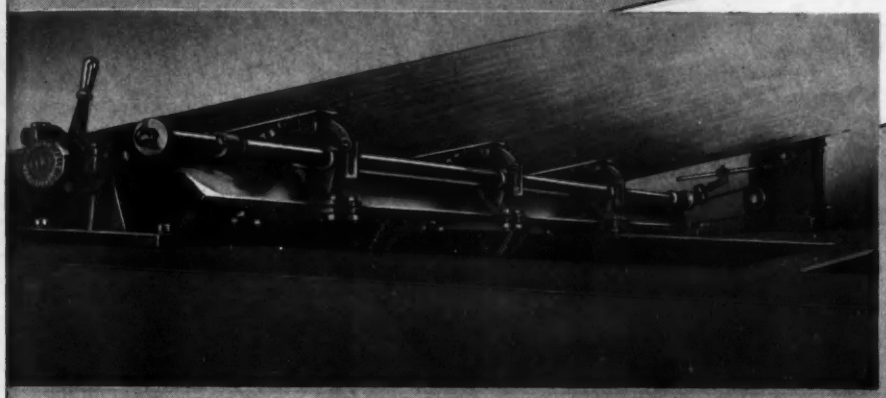
These fares are subject to a small Federal Tax.

OPA Issues Informative Digest

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 17, 1942—The paper and paper products branch of the Office of Price Administration has made available to paper products distributors an "informative digest" designed to assist them in determining their status under the provisions of the General Maximum Price Regulation. Prepared in question and answer form, the digest interprets and explains most of the important provisions which relate to the paper trade, such as the five pricing tests, delivery and transportation charges, tax charges, record keeping, posting and other requirements.

KEEPING FELTS FIT



IS THE
VICKERY FELT CONDITIONER'S PART OF THE PAPER PRODUCTION PROGRAM . . .

– and it's proving a very important part of the job in hundreds of mills the Country over. By keeping press felts continuously clean and open, a major cause of unwanted shut-downs is eliminated. It all adds up to thousands of hours of needed paper machine production.

Make sure your Vickery Conditioners are on the job one hundred per cent. Check with us if they're not.

BIRD MACHINE COMPANY
SOUTH WALPOLE · MASSACHUSETTS

N.P.T.A. to Hold Regional Meetings

In lieu of the cancellation of the September convention of The National Paper Trade Association, the association office has scheduled a series of Regional meetings as follows:

Tuesday, August 25, Hotel Touraine, Boston, Mass.

Thursday, August 27, Syracuse Hotel, Syracuse, N. Y.

Wednesday, September 2, Palmer House, Chicago, Ill.

Tuesday, September 8, Seattle, Wash.

Wednesday, September 9, Portland, Ore.

Friday, September 11, San Francisco.

Monday, September 14, Los Angeles.

Wednesday, September 16, Dallas, Tex.

Thursday, September 17, Kansas City.

Friday, September 18, St. Louis.

Monday, September 21, Atlanta, Ga.

Matters of vital importance to the general distributing trade will be discussed at these meetings and since the association has offered to act as liaison between the Washington officials and the industry invitations will be extended to non members as well as members of the association.

W. J. McClintock Heads Box Men

READING, Pa., August 17, 1942—William J. McClintock, Harrisburg, was reelected president of the Central Division of the National Paper Box Manufacturers' Association at the division's annual meeting last week.

Other officers elected were: Vice president, A. Harry Sheffer, Baltimore; executive committee, Floyd Wheeler, Bangor, Pa.; H. D. Edwards, Gloversville, N. Y.; H. L. Stortz, Philadelphia, and E. W. Gilbert, Allentown.

The convention was devoted almost exclusively to a discussion of OPA regulations affecting paper box manufacturers. The regulations were discussed by Glenn Mather, of the regional OPA office in New York City; Clement Moore, Philadelphia, cost accountant for the association, and John H. Patterson, Buffalo, N. Y., a WPB consultant.

Abitibi Appeal Indefinite

TORONTO, Ont., August 17, 1942—Nothing definite has been announced yet as to when the privy council at London will hear the appeal of the liquidator for Abitibi Power and Paper Company from the decision of the Ontario court ordering the sale of the company's properties. It is understood, however, that legal representatives are busy with their preparations and are hopeful that everything will be completed and in London in time to have the case heard at the November sittings.

Fire Damages Bernie Box Co.

TROY, N. Y., August 17, 1942—The Bernie Paper Box Company was damaged by fire early this week when loss estimated at several hundred dollars was done. The company occupies the first floor of the building which is owned by Hall, Hartwell & Co. The fire originated on the first floor and burned through the flooring into the cellar. The first floor was damaged mostly by smoke and water while the cellar ceiling was also badly damaged. The damage is covered by insurance.

Anthony Anable in Navy

Anthony Anable, a member of the staff of The Dorr Company, Inc., 870 Lexington avenue, New York, since 1923, and advertising and publicity manager since 1932, has been commissioned a Line Officer in the U. S. Naval Reserve, rank Lieutenant-Commander, and left August 14 for active duty in an administrative capacity at the U.S.N.R. Midshipmen's School (Officers' Training School) in New York.

Commander Anable served as an ensign in the Naval Reserve from 1917-1919 aboard one of the naval transports that carried our first A.E.F. to France. For the present, it is planned to have his duties as advertising manager carried on by his assistant, Albert Morris, who has been a member of the Department for five years.

U. S. Commends Sonoco Co.

The Sonoco Products Company has just been commended by the Treasury Department upon reaching the figure of 10% of their gross pay-roll, voluntarily diverted to the purchase of War Savings Bonds, either through the Pay-roll Allotment Plan or through the cash purchase of individuals.

From the plants at Hartsville, S. C., Rockingham, N. C., Garwood, N. J., Mystic, Conn., and Lowell, Mass., 99.73% of Sonoco Products Company's more that 2,000 employees are regularly purchasing War Savings Bonds. The main plant at Hartsville, S. C., employing over 1500, is enrolled 100%. Quoting from the letter received from the Treasury Department, War Savings Staff, Columbia, S. C.: "We wish to take this opportunity to congratulate you on the fine showing made by your employees and on the cooperation of the firm itself."

Sherman Anderson Now at Fort Wayne

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., August 15, 1942—Sherman Anderson, who resigned recently as assistant superintendent at the Dexter Sulphite Pulp and Paper Company, is now the manager of a huge trucking project at Fort Wayne, Ind., known as the Fort Wayne Terminals. He was a resident of this place for nearly thirty years during which time he was connected with the paper company. While here he organized and directed the Hustlers' Club, an organization for the social improvement of young men employed at the local paper mill.

WPB Rules on Rubber Rolls

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 17, 1942—Specifications for the manufacture of rubber-covered rolls used in the paper, textile, tanning, steel, and other industries were issued by the Director General for operations today in order to save an estimated 25,000 pounds of rubber per month.

The specifications (Amendment 15 to Order M-15-b-1) require the use of less rubber in compounds for rubber-covered rolls. Washing machine, printer, finger-print, and business machine rolls are not covered by the amendment.

Black River Reservoir May be Postponed

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 17, 1942—Announcement is made that construction of the huge water storage reservoir as a factor in the Black River regulating system is believed to be definitely postponed until the end of the war. The certiorari proceedings started early in the summer by the Hudson River Power Corporation, as owner of the former undeveloped water powers of the International Paper Company at Glen Park, against the Black River Regulating District Board is said to be responsible. Upon the final outcome of the proceedings will depend the construction of the reservoir. After the State Water Power and Control Commission had placed its approval on the $1,800,000 reservoir project last March, the majority ownership of the benefiting properties, which are the interests obligated to pay for construction and maintenance costs, also approved it.

Inventory Index Higher

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 19, 1942—The June index of the value of paper manufacturers' inventories was 148.5 compared with 145.9 in May and 118.8 in June of last year taking the average month of 1939 at 100 according to the monthly industry survey of the Department of Commerce.

The department's figures show also that for June the index of the value of paper manufacturers' shipments was 143 compared with 154 in May and 149 in June of last year taking the average month of 1939 at 100.

Hammermill Employees Honored

ERIE, Pa., August 17, 1942—Twenty-three Erie residents employed at Hammermill Paper Company were honored during the past month for service.

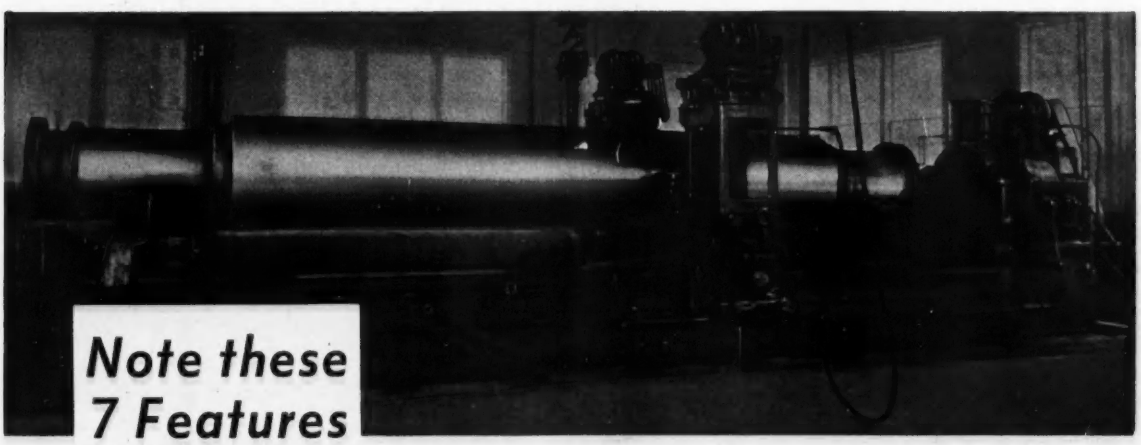
The group, with respective years of service, was:

Thirty-five years: Edward Fletcher. Thirty years: Eugene Kuhn, Charles B. Milner, Leonard Randecker. Twenty-five years: Andrew Berg, Simian Cristea, Harry A. Johnson, Robert S. Young, Tony Cihon. Twenty years: Donald Ainsworth, Florian Hada, Dana Lee, Catherine Kaspar, Joseph Mikoda, Louis French. Fifteen years: Virgil Clark, Michael Chiappetti. Five years: Stanley Janiuk, Jr., Bendz Lind, Walter Borczon, Roman Sybyl, Allan Snyder, James Hess.

Hammermill workers receive gold watches or share of company stock when they celebrate twenty years of service with the company.

To Represent Cochrane Corp.

Cochrane Corporation, Philadelphia, Pa., announces the appointment of the Energy Control Company as flow meter representative for eastern Pennsylvania, southern New Jersey, Delaware and Maryland. The Energy Control Company is located at 3107 North Broad Street, Philadelphia, and will also handle Hays combustion control and instruments and the Heacon damper. The Energy Control Company also represent these lines in New York City and vicinity, including western Connecticut and northern New Jersey.



Note these 7 Features

1. New V-Belt Drive for increased power, greater rigidity.
2. No obstruction to placing rolls directly in machine from overhead crane or hoist.
3. Fully enclosed screw-well, automatically lubricated. No water nor grit can enter.
4. Bed ways automatically lubricated.
5. Provision for keeping the bed constantly in perfect alignment.
6. Single micrometer adjustment for any predetermined crown.
7. Rigid support under grinding wheels for all roll diameters.

MAKES PERFECT ROLL REGRINDING EASIER—QUICKER

With a Lobdell Roll Grinder, rolls are accurately resurfaced and back in the stack with the very minimum loss of time. Lobdell Grinders are built with intimate knowledge of requirements. They are substantially proportioned, generously powered and retain their extreme accuracy throughout their long life. Read the Seven Advantages listed here and you will realize why Lobdell Grinders are used in more than seventy leading paper mills. Additional data will be gladly furnished.

LOBDELL COMPANY, Wilmington, Delaware

Also Makers of Lobdell Calender Stacks ● Lobdell "Puraloy" Chilled Iron Rolls ● Lobdell Micrometer Roll Calipers ● Write for any information desired.

OPA Issues Paper Check List

The Office of Price Administration, Washington, D. C., Leon Henderson, Administrator, issued July 25 Maximum Price Regulation No. 187. This order specifically covers the sale of the many paper board products of concerns manufacturing folding cartons, set-up boxes, corrugated and solid fiber containers. The regulation became effective on July 30, 1942 and includes all manufacturers services in connection with the production of the enumerated products. It does not include liquid tight containers, milk bottle caps, book matches and other paper items covered by Maximum Price Regulation No. 129.

In connection with Maximum Price Regulation No. 187, Glenn Mather, Chief, Paper and Paper Products Section, New York Regional Office of the OPA, 350 Fifth avenue, New York, issued August 12 a revised check list covering paper and paper products. This base chart facilitates reference for determining the applicability, basing dates, and gives the price formula in basing period. Included are alphabetical lists of items commonly sold by paper mills, converters, and general paper merchants, a second list of paper board only, and a list of boxes and related products. Each check list is conveniently arranged to provide manufacturers', wholesalers', and retailers' ceilings.

Better Demand for Fine Papers

BOSTON, Mass., August 17, 1942—Much more activity in fine papers developed last week than had prevailed for several weeks previously, according to the trade. Sales, said a manufacturer's representative, were chiefly in small lots, but the large number of small lots made the aggregate an appreciable volume. Apparently, stocks purchased by jobbers from manufacturers earlier in the year have been largely consumed.

One factor to which this activity is ascribed is the fact that a number of business concerns has started publishing house organs.

Book papers such as coated, uncoated, and offset are moving the most slowly, due to lack of advertising.

Staple lines, like bonds, ledgers, index bristol, onion skins and manifolds, and any other papers included in office supplies, are naturally unaffected by the smaller amount of advertising.

Prices continue around the same levels.

A prominent firm of paper merchants here feels that the real problem is to convince people that there is no shortage of paper. To further this conviction, the company is using letterheads to carry the message and has notices posted on the doors of the office.

This firm is of the opinion that the paper market will reach a high level of activity by October, possibly by September.

F. T. Carson Receives Honorary Degree

WASHINGTON, D. C., August 17, 1942—F. T. Carson of the Paper Section of the National Bureau of Standards had the degree of Doctor of Science conferred on him by his alma mater, Hardin-Simmons University, at the H.S.U. Golden Jubilee commencement in June. This was in recognition of his achievements in his many researches relating to the physical properties of paper, particularly with reference to testing.

WPB Advises Printing Paper Users

America's printing and publishing industry, which has "suffered very little until now under the accelerating war program," must prepare to "cheerfully grub out its own salvation amidst the shortages of labor and materials that appear all too close," E. W. Palmer, deputy chief of the Printing and Publishing Branch of WPB, said August 10 in a speech to the International Association of Printing House Craftsmen in convention at Grand Rapids, Mich.

Buyers of printing papers, he said, should "limit their stockpiling to carefully estimated requirements for the early fall months. Today, in anticipation of a possible transportation stringency this fall, the provisions of Priorities Regulation No. 1 have been relaxed to permit accumulation of a heavier inventory of printing papers and this should obviate another immediate shortage provided buyers limit their stockpiling.

"One of the serious aspects of the paper supply is the varied uses to which paper and board are being put as substitutes for metals and other critical materials. The printing industry must anticipate many conversions to paper and paper products from the now critical metals. If it can 'cash in' by fitting its facilities to the making of new products while such new products are being developed, it will have gone a long way towards solving a major part of its serious problem of finding adequate printing volume."

South Africa Makes More Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 19, 1942—The South African paper industry has been stimulated into increased production since the outbreak of the war, largely because of reduced imports, which formerly amounted annually to almost $8,000,000 in value, says a report to the Department of Commerce. At present, the local industry is supplying more than 40 per cent of the Union's needs.

Imported pulp is still necessary, however, since locally produced pulp cannot be bleached to a proper degree of whiteness required for better papers. Local pulp is made from pine timber.

Supplies of timber are adequate for the manufacture of an even larger proportion of the Union's needs than that being produced at present, it is reported, but the future of the local industry depends on the finding of a means of bleaching the pulp. Belief is expressed that American industry will continue to supply large amounts of paper, particularly kraft to the Union.

The largest part of the Union's paper industry is concentrated in Transvaal.

Safety Congress to Meet Oct. 27-29

The date and location of the 31st National Safety Congress and Exposition have been changed because the government has taken over for military purposes the Stevens and Congress Hotels in Chicago, where the Congress originally was to have been held.

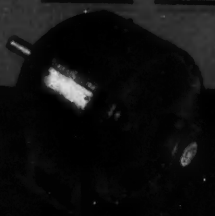
The 1942 Congress will be held October 27, 28, 29. It will be housed in three big Chicago hotels — the Sherman, the La Salle and the Morrison. Convention headquarters will be in the Sherman.

These changes will in no way affect the size, scope and importance of the Congress. There will be 200 sessions, with 500 program participants.

NEED MOTORS FOR WAR WORK?

4 things to do to get them quicker

YOUR AID ON THESE 4 POINTS WILL HELP US PRODUCE AND DELIVER MORE MOTORS



Tri-Clad motors are available in a full range of sizes from 1 to 100 hp. Your General Electric representative can supply complete information and help you get the Tri-Clad motor to do your job. *General Electric, Schenectady, N. Y.*

Your choice of G-E Tri-Clad motors will give you *extra protection* against (1) physical damage, (2) electrical breakdown, (3) operating wear.

General Electric and its employees are proud of the Navy award of Excellence made to its Erie Works for the manufacture of naval ordnance.

SPECIFY TRI CLAD MOTORS

GENERAL ELECTRIC

...standard, open, sleeve-bearing motors whenever possible

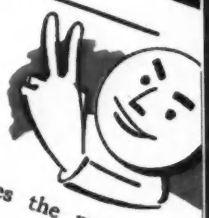
The standard Tri-Clad motor, though classed as an "open" motor, is so well protected that it gives good service on many jobs where special motors often were recommended.

Sleeve-bearing motors often can be supplied more readily than ball-bearing types because of the present demand for ball bearings on other war equipment. Use ball-bearing motors only where load or mounting conditions require them.

Special end shields and other modifications may result in delay for you and others.

Consider the use of standard or multispeed a-c motors in place of d-c motors wherever this alternative is possible

order motors early . . . giving complete specifications



Place motor orders when you order the machines they are to drive.

If you are planning motor drives for conveyors or other equipment for new plants, place the orders as soon as design work indicates the motor requirements.

Avoid delay and mix-ups by giving complete specifications, preferably on an order form which your G-E motor representative can supply.

give complete priority information, properly endorsed

The filling of many motor orders is delayed because of incomplete priority information. If in doubt about details, call the nearest G-E office.

When placing orders for motors, be sure that complete priority data accompanies *each order* in the form of certificates, endorsements properly signed, etc. The priority is not effective in scheduling shipment until it is received by your supplier.

Your needs and the war effort are best served by using the proper priority rating assigned by the War Production Board for the job involved, and requesting delivery no earlier than actually required.

Under the Production Requirements Plan, builders of motor-equipped machines for subsequent sale may order their requirements in advance.

check with G.E. for delivery from local warehouse stocks

To meet urgent war needs, a supply of standard Tri-Clad motors is maintained at G-E factories and local G-E warehouses. Perhaps the motor you want, or can use with a few simple changes, is available for immediate shipment.

Your local G-E motor representative can furnish information on motors which may be in stock in the following cities:

Atlanta, Ga.
Boston, Mass.
Buffalo, N. Y.
Charleston, W. Va.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Dallas, Texas
Davenport, Iowa
Denver, Colo.
Detroit, Mich.
Houston, Texas
Kansas City, Mo.
Los Angeles, Calif.
Milwaukee, Wis.
Minneapolis, Minn.
New York, N. Y.
Oklahoma City, Okla.
Omaha, Neb.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Ore.
St. Louis, Mo.
Salt Lake City, Utah
San Francisco, Calif.
Seattle, Wash.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending August 15, 1942

STOCKS

	High	Low	Last
A. P. W.	....	....	....
Armstrong Cork Co.	27	25¼	26½
Celotex Corp.	6⅜	6⅛	6¼
Celotex Corp., pf.	70	69¾	70
Certain-Teed Products Corp.	1¾	1¾	1¾
Certain-Teed Products Corp., pf.	26½	25	26½
Champion Paper & Fibre Co.	15¾	15½	15¾
Champion Paper & Fibre Co., pf.	95	94	94
Congoleum Nairn Co.	15¾	15¼	15½
Container Corp. of America	12¼	12	12
Continental-Diamond Fibre Co.	6¼	6¼	6¼
Crown-Zellerbach Co.	10½	10⅜	10½
Crown-Zellerbach Co., pf.	81⅝	81¼	81⅝
Dixie-Vortex Co.	....	....	....
Dixie-Vortex Co.—A.	36	36	36
Flintkote Co.	11½	11	11⅜
Robert Gair	1⅝	1½	1⅝
Robert Gair, pf.	9½	9½	9½
International Paper Co.	9½	8¾	9⅛
International Paper Co., pf.	48¾	47½	48¾
Johns-Manville Corp.	56¾	55¾	56¾
Johns-Manville Corp., pf.	125¾	125¾	125¾
Kimberly Clark Corp.	26	25¾	26
MacAndrews & Forbes	....	....	....
MacAndrews & Forbes, pf.	126	126	126
Masonite Corp.	26½	26	26
Mead Corp.	6¾	6¼	6⅝
Mead Corp., pf.	66½	66½	66½
Paraffine Companies, Inc.	....	....	....
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	9¼	9	9
Rayonier, Inc., pf.	25	24⅛	25
Ruberoid Co.	17	17	17
Scott Paper Co.	33¼	32¼	33¼
Scott Paper Co., pf.	109	109	109
Sutherland Paper Co.	21⅝	21½	21⅝
Union Bag & Paper Corp.	8⅜	8¼	8⅜
United Paperboard Co.	3⅛	3	3⅛
U. S. Gypsum Co.	53½	52	53¼
U. S. Gypsum Co., pf.	171½	171	171
West Virginia Pulp & Paper Co.	13¼	13	13¼

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 4½s '47	98⅞	98	98
Certain-Teed Products Corp. 5½s '48	89½	89	89
Champion Paper & Fibre Co. 4¾s '50	103½	103½	103½
Champion Paper & Fibre Co. 4¾s '50	....	....	....
International Paper Co. 6s '55	105	104¾	104¾
International Paper Co. 5s '47	104¼	103⅝	103⅝
Mead Corp. 4½s '55	....	....	....
West Virginia Pulp & Paper Co. 3s '54	104⅞	104	104

New York Curb Exchange

High, Low and Last for Week Ending August 15, 1942

STOCKS

	High	Low	Last
American Box Board Co.	4⅛	4	4
Brown Co., pf.	....	....	....
Great Northern Paper Co.	....	....	....
Hummel-Ross Fibre Corp.	3	3	3
National Container Corp.	8¾	8¼	8¾
St. Regis Paper Co.	1⅜	1⅜	1⅜
St. Regis Paper Co., pf.	109½	109½	109½
Taggart Corp.	2¾	2¾	2¾

BONDS

American Writing Paper Co. 6s '61	83	82	83

National Container Nets $1.26

The National Container Corporation and subsidiaries for the six months ended on June 30, reports a net profit of $418,060, equivalent to $1.26 each on 330,482 shares of common stock, compared with $455,549, or $1.37 a share, in the first half of last year. Profit, before Federal taxes, was $1,321,360, against $792,899.

U. S. Gypsum Earns $1.82

The United States Gypsum Company reported net income of $2,445,460, or $1.82 a common share for the six months ended on June 30, against $3.211,-826, or $2.46 a common share, in the same 1941 period.

Scott Co. Issues Report

The consolidated report of the Scott Paper Company, announced yesterday, disclosed that net sales for the six months ended on July 4 were $17,235,-788, an increase of 45% over $11,846,072 sales for corresponding period of 1941.

Provision for Federal and State taxes for this year's period amounted to $1,160,000. This compared to a provision of $627,835 for such taxes for the six months of 1941, after giving effect to the revenue act of September 20, 1941, which was retroactive to cover that period. On the basis of these tax provisions, net earnings this year were $837,890, against $869,965 for the same period in 1941.

After provision for preferred dividends, the net earnings are equal to $1.06 a share on the common stock, against $1.11 last year.

Although earnings for the first three months of 1942 were published as being equal to 66 cents a common share, William F. Mohan, first vice-president, said that "on the basis of the substantially higher rates used in establishing the provision for Federal taxes for six months of 1942, earnings per common schare would be 55 cents for the first quarter and 51 cents for the second quarter, or a total of $1.06 for the six months."

Sabin Robbins Votes Dividend

Directors and officers of the Sabin Robbins Paper Company were reelected at the annual meeting yesterday, the board declared the quarterly dividend on preferred stock, and earnings for the year ended June 30 were reported.

The company reported net profit of $115,874, after charges and taxes, compared with $121,938 in the previous year. The dividend of $1.75 on preferred is payable October 1 to holders of record September 18.

Directors renamed are J. F. Seagraves, C. A. Dickerson, Sabin Robbins III, E. A. Vosmer, C. C. Benedict, Ben Segal, and C. W. Schank.

Union Bag Loses

The Union Bag and Paper Corporation for the June quarter, reports a net income of $421,796, equal to 33 cents a share compared with $485,023, or 38 cents a share, in the same period last year. Twelve months to June 30: Net income, $2,452,069, or $1.93 a share, compared with $1,921,002, or $1.51 a share, in the twelve months to June 30, 1941. Sales for the quarters were $7,082,978 and $6,739,560, respectively, and $31,016,072 and $24,338,149, respectively, for the twelve months' periods.

Johns-Manville Nets $1.24

Consolidated net income of the Johns-Manville Corporation and subsidiary companies for the second quarter of 1942 was $1,103,054, compared to $1,457,-213 for the corresponding period last year, Lewis H. Brown, president, reported today. Earnings per share

THIS WILL *Always* BE!

Wonder of the Western World—Niagara Falls has been called. And not by accident but apparently by design is it located here in America. Its thunder is the thunder of a people who have strength and happiness in freedom. Its movement is the restless, surging movement of men who feel a deep compulsion to go forward in history. Its power is resistless—and cannot be stemmed.

Those pioneers who first glimpsed the stately grandeur of Niagara saw in its rainbow the promise of a new world where peace and opportunity could be found. The rainbow is still there, and the peace and opportunity which America has given to millions are treasured beyond price. In a world where freedom is being crushed, Niagara symbolizes everything which this country means—strength, abundance, steadfastness. It is a limitless fountainhead of power which can be transformed into energy that brings good to all.

We who work within sight and sound of Niagara Falls are devoting every ounce of our energies and facilities to speeding the flow of Chemicals for Victory.

CAUSTIC POTASH · CAUSTIC SODA
PARA · CARBONATE OF POTASH
LIQUID CHLORINE

FROM *THE ORIGINAL BY ADOLF DEHN . . . IN NIAGARA ALKALI COMPANY'S COLLECTION OF PAINTINGS OF NIAGARA FALLS*

NIAGARA ALKALI COMPANY

Niagara ALKALI COMPANY

60 EAST 42nd STREET, NEW YORK, N. Y.

of common stock, after preferred dividends, were $1.24 for the quarter as against $1.62 per share last year, he said.

Net income before income and excess profits taxes was $9,776,979 in the first half of 1942 compared with $7,631,466 in 1941. Income and excess profits taxes were estimated on the basis of the Ways and Means Committee report to be $7,977,591, compared with $4,612,664 last year.

Net income for the first half of 1942 was $1,799,-389. After preferred dividends, this was equivalent to $2.01 a share of common stock compared to $3.35 in the first half of 1941.

Sales for the first six months of 1942 amounted to $48,754,848, compared with $38,812,510 for the first half of 1941.

Great Northern Net 85 Cents

The Great Northern Paper Company and subsidiaries for the six months ended June 30, 1942, reports a net income of $848,214 after taxes and charges, equal to 85 cents a share on 997,480 capital shares; year ago $1,288,485 and $1.29 a share.

I. P. Co. Reports $2,170,087

The International Paper Company for the three months prior to June 30 reports net profit of $2,170,-187, after $1,708,220 reserve for possible additional income and excess profits taxes, against $3,214,688, after $1,500,000 tax deduction, in same period last year. Six months ended June 30: Net income $4,639,-982, after $3,947,635 provision for possible taxes, against $6,761,511, after $2,000,000 tax deduction, in same period last year. The statement of profit and loss follows:—

Ruberoid Profits Off

The Ruberoid Company for the six months to June 30, reports a consolidated net profit of $268,146, equal to 67 cents a share, against $584,876, or $1.47 a share, last year. Net sales for the first six months of this year were $13,745,089, the largest for any first half year in the company's history and compared with $11,066,842 for the first half of 1941. Earnings before providing for Federal income and excess profits taxes and contingencies amounted to $1,236,846, against $885,251, last year. June quarter; Consolidated net profit, $79,302, or 20 cents a share, against $391,779, or 98 cents a share, for second quarter of 1941.

Champion Increases Profits

The Champion Paper and Fibre Company reports, for the year ended on April 26 a consolidated net income of $3,129,986, after all charges, including taxes. This is equal, after deducting preferred dividends paid, to $4.71 each on 550,500 shares of common stock, and compares with net profit of $2.379.-660, or $3.37 a common share, for the year to April 27, 1941.

Sales for the year amounted to $42,258.385 as against $29,743,122 the year before.

Crystal Tissue Earns 44 Cents

The Crystal Tissue Company for the six months to June 30, reports a net income of $50,454, equal after preferred dividend requirements to 44 cents each on 93,000 common shares, against $56.000, or 50 cents a share, last year; net sales, $1,399,260, against $1,255,213.

STATEMENT OF CONSOLIDATED PROFIT AND LOSS

	Three Months Ended June 30, 1942	Three Months Ended June 30, 1941	Six Months Ended June 30, 1942	Six Months Ended June 30, 1941
SALES AND OTHER INCOME:				
Gross sales, less returns, allowances and discounts	$54,294,458.03	$50,426,670.33	$115,230,245.01	$93,837,090.91
Other income—net	1,044,016.41	667,077.22	2,122,077.73	1,329,208.69
	$55,338,474.44	$51,093,747.55	$117,352,322.74	$95,166,299.60
COST AND EXPENSES:				
Cost of sales:				
Pulpwood, labor, materials, etc.	$28,664,916.03	$26,253,583.74	$60,300,016.90	$49,254,642.49
Maintenance and repairs	3,174,873.08	2,582,944.04	6,333,254.23	4,962,080.77
Taxes (other than income taxes)	1,007,519.34	873,250.47	2,010,005.88	1,705,818.68
Outward freight and delivery expenses	6,431,324.46	6,382,305.96	12,761,520.60	11,980,627.31
Selling, general and administrative expenses	1,819,113.47	1,842,212.26	3,648,782.02	3,586,067.83
Provision for doubtful accounts	179,826.54	167,369.11	359,638.57	330,297.81
	41,297,572.92	38,101,665.58	85,413,218.20	71,819,534.89
	$14,040,901.52	$12,992,081.97	$31,939,104.54	$23,346,764.71
DEDUCTIONS:				
Interest on funded debt	$684,169.03	$722,363.36	$1,385,719.77	$1,436,580.58
Interest on other debt	2,757.37	1,109.99	6,074.03	3,428.31
Amortization of debt discount and expense	65,266.56	95,346.22	127,173.95	179,078.11
Depreciation and obsolescence	2,828,994.19	2,716,745.73	5,384,844.88	5,425,061.23
Depletion	202,543.42	227,942.93	412,741.99	437,163.29
Dividends paid on stock of subsidiary	.....	8,495.00	.....	16,993.75
Dividends accrued but not being currently paid on preferred stocks of subsidiaries	1,733.75	5,878.25	3,467.50	11,895.50
	3,785,464.32	3,777,881.48	7,320,022.12	7,510,200.77
NET PROFIT BEFORE TAXES BASED ON INCOME:	$10,255,437.20	$9,214,200.49	$24,619,082.42	$15,836,563.94
LESS: PROVISION FOR TAXES BASED ON INCOME:				
U. S. Federal taxes (based on existing laws):				
Normal	$1,803,352.00	$1,940,059.20	$4,004,295.00	$3,172,635.20
Excess profits	4,351,036.00	1,857,788.00	10,559,799.00	2,775,876.00
State taxes	171,508.00	256,286.00	353,721.00	415,085.00
Canadian and other foreign taxes	51,234.11	445,378.91	1,113,650.21	711,456.67
	6,377,130.11	4,499,512.11	16,031,465.21	7,075,052.87
NET PROFIT BEFORE RESERVE FOR POSSIBLE ADDITIONAL TAXES	$3,878,307.09	$4,714,688.38	$8,587,617.21	$8,761,511.07
Reserve for possible additional income and excess profits taxes	1,708,220.00	1,500,000.00	3,947,635.00	2,000,000.00
NET PROFIT	$2,170,087.09*	$3,214,688.38	$4,639,982.21*	$6,761,511.07

* Subject to determination of actual tax liability when new tax law is enacted.
The above statements are subject to audit and final adjustment at December 31 (end of fiscal year).

CONSTRUCTION NEWS

Under limitation order L-41 all projects involving expenditures of more than $5,000 must be specifically approved by the War Production Board. The status of projects reported herewith under the provisions of the order is not known.—EDITOR.

Aurora, Ill.—The United Wall Paper Factories, Inc., 3330 West Fillmore street, Chicago, Ill., manufacturer of wall paper stocks, has approved plans for further expansion in recently constructed plant near Aurora. The first group of one and multi-story buildings, for which erection was begun last April, is now in service, producing certain products for the Government. The new additions are being designed to duplicate these structures. Similarly, the buildings will be given over to production for the Government. Construction will be carried out with view to complete conversion of plant for regular wall paper manufacture in the future, providing facilities for large increase in former mill capacity of company. Erection is scheduled to begin at early date.

Philadelphia, Pa.—The Light Corrugated Box Company, Decatur and Tulip streets, manufacturer of corrugated boxes and containers, will proceed with addition to plant, for which general contract recently was awarded to Philip Litman, 5331 Arlington street, Philadelphia. New structure will be used for storage and distribution. I. W. Levin, 1531 Belmont avenue, Philadelphia, is architect.

Chicago, Ill.—The Central Paper Stock Company, 1265 West North avenue, commercial paper products, has begun rebuilding of storage and distributing plant, at location noted, damaged by fire several weeks ago, as previously noted in these columns. Sub-contracts for different branches of work are being awarded, and completion is scheduled at earliest possible date. H. Kaplan & Co., 851 North Paulina street, Chicago, have the general erection contract. Electrical installation will be made by Super Electric Construction Company, 1442 South Racine avenue, and plumbing by Holab Plumbing & Heating Company, 1918 North Humboldt boulevard, both Chicago. Property is owned by Procter & Gamble Company, 1232 West North avenue, and occupied by Central company under long-term lease. B. Albert Comm, 20 West Jackson boulevard, is architect.

Lockport, N. Y.—The Upson Company, manufacturer of wall board, box board and other paper board specialties, is running on a heavy production schedule, giving employment to about 250 workers in different departments. It is expected to hold to present manufacturing basis for an indefinite period. A wage advance of five cents an hour was recently granted at the mill.

Chicago, Ill.—The Poster Products, Inc., 3401 West Division street, paper products for display and advertising service, has taken out a permit to build an addition for storage and distribution service. No estimate of cost announced. General contract for erection has been awarded to the Robert Black Company, 122 South Michigan avenue, Chicago, and work will proceed at once. Fox & Fox, 549 West Randolph street, Chicago, are architects.

Benson, Minn.—The Western Fiber Company, Duluth, Minn., has broken ground for construction of proposed new fiber mill near Benson, recently referred to in these columns. It will be located on State Highway 17, and is expected to be ready for service at early date. No estimate of cost announced. This will be the initial unit of the new plant, which has been designed for several other processing and production buildings in the future. G. R. Moore is president and general manager, in charge.

Senneterre, Que.—Town officials, headed by J. Bilodeau, mayor, have negotiations under way with a new company, name temporarily withheld, for the construction and operation of a pulp and paper mill on local site. Proposed plant will comprise several one and multi-story buildings for pulp and paper-making departments, and is reported to cost close to $200,000, including equipment.

Hold "PR-10" Conference at Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 17, 1942—The paper trade was represented at the New England "PR-10" Conference, held at the Hotel Statler, August 14. The meeting was arranged by the War Production Board, sponsored by 27 New England business organizations, including the New England Paper Box Manufacturers Association, in cooperation with the New England Council.

With 1200 attending the luncheon at 12:15 in the Ball Room, T. H. Beard, chairman, industrial committee, New England Council, presided.

Speakers included Walter H. Wheeler, Jr., New England regional director, WPB; Mason Maughum, chief, Business Contact Section, Washington; Arthur Harris, chairman, Priorities Appeal Board, Washington; Norman Duehring, chief consultant, Production Requirements Plan, WPB, Washington; William P. Homans, manager, Boston Priorities District, and Marcellus Wright, assistant chief, Production Code Branch, WPB, Washington.

The addresses were followed by nine industry conferences in respective rooms in the hotel.

At the conference for distributors and wholesalers on "Repair, Maintenance and Operating Supplies for Businesses which are to Transmit Customer's Symbols," the consultants were Frank J. Hynes, Containers Branch, WPB, Washington, and M. K. Dutton, Printing and Publishing Branch, WPB, Washington.

Paper Stock Market Dull

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 17, 1942—Summer dullness prevails in the paper stock market. Paper mills have been using up what they obtained from the large collections in the spring, when the word of a shortage in paper was broadcast. Since earlier in the year, collections have been dropping off, but it is expected that eventually there will be another drive on waste paper.

OPA Lists Advisory Bag Committee

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Aug. 17, 1942—Eleven men identified with the kraft grocers and variety paper bags industry have been named to serve on an Industry Advisory Committee, the Office of Price Administration announced today. The committee will cooperate with OPA in studies of the industry's price problems.

Similar duties will be performed by an Industry Advisory Committee for the kraft paper industry to which seven men associated with companies in that field have been named.

Selected to serve on the committees are the following:

Kraft Grocers and Variety Bag Advisory Committee: H. S. Daniels, Union Bag and Paper Corporation, New York; J. M. Hartmann, Southern Kraft Corporation, New York; T. V. Hefferman, Trinity Bag and Paper Company, New York; Edward A. Jacobs, Triangle Paper Bag Company, Covington, Ky.; W. R. Kohl, Lincoln Bag Company, Chicago, Ill.; E. Bruce Livy, Wortendyke Manufacturing Company, Richmond, Va.; Harold O. Nichols, Crown-Zellerbach Corporation, New York; A. E. Salzman, Brooklyn Standard Bag Corporation, New York; Jacob E. Schorsch, Schorsch and Co., New York; Gilbert A. Weisberger, Equitable Paper Bag Company, Long Island City, N. Y.; Willard J. Henry, Southern Advance Bag and Paper Company, Chicago, Ill.

Kraft Paper Advisory Committee: O. P. Carter, Manager, Gaylord Containers Corporation, St. Louis, Mo.; S. M. Phelan, Jr., vice-president, West Virginia Pulp and Paper Company, New York; George Stuhr, Manager, International Paper Company, New York; Gilford Henderson, paper sales manager, Brown Company, New York; R. O. Warner, vice-president, Minnesota and Ontario Paper Company, Minneapolis, Minn.; W. H. Anders, president, Nashua River Paper Company, East Pepperell, Mass.; H. O. Nicholas, eastern manager, Crown-Zellerbach Corporation, New York.

Will Make Piercefield Plant Available

[FROM OUR REGULAR CORRESPONDENT]

PIERCEFIELD, N. Y., August 17, 1942—A communication received last week by the Chamber of Commerce from E. F. Burns, an official of the International Paper Company, brought out that the concern will cooperate in every way possible to make the property available for defense work. Mr. Burns, who has supervision over all idle mills of the company, stated that in his opinion the very large electric power requirements of an aluminum plant would more or less eliminate the local plant insofar as the proposed government plant for Northern New York is concerned. The mill here was erected in 1904 and supplied almost the entire support of that thriving little community until it was shut down several years ago. Since then the population has shrunk and the loss of the payroll has affected business to a great extent. The Chamber of Commerce has endeavored numerous times to bring about a resumption of operations at the local plant. It is a fireproof brick plant, covering an area of about a square mile, and its dimensions are 1,000 by 250 feet.

LET'S FACE THESE FACTS: It takes about a half-ton of scrap steel to make each ton of new steel—for ships, trucks, tanks, and guns. Scrap steel speeds production. Waste materials—scrap metals, rubber and all the rest —are the life-blood of America's war industry. The demand is great, the supply dwindling.

THE PAPER INDUSTRY CAN HELP: Make sure *all usable waste materials are put to work.* Check your junk piles. Inspect idle equipment. If it can be used—fine! If not, why not scrap it? (All scrap steel collected will be purchased by the steel industry at the government-controlled price.)

WHAT TO DO: Name a wide awake salvage committee chairman and set up a definite continuous salvage program. Separate the scrap—ferrous and non-ferrous metal, for example—and when you have a large-enough quantity call the scrap dealer. Also urge your employees to collect their old rubber, and discarded metal household equipment and get it to a local salvage committee, charity or junk dealer.

A JOB FOR EVERYONE: Collecting scrap materials is a job no one group can do alone. Every pound turned in will help shorten the war. It's a job that every citizen, every company, and every industry with a stake in America's future will share in doing—today and every day for the duration. The American Rolling Mill Company, 2481 Curtis Street, Middletown, Ohio.

★ ★ ★ ARMCO ★ ★ ★

This advertisement is in support of the Salvage Program of the Bureau of Industrial Conservation, the War Production Board.

PAPER MILL NOW MANUFACTURING NEW PLASTIC

(Continued from page 9)

watt. It has taken about a year to bring the project to its present status, since construction was started in September, 1941. The work has been done under the direction of William F. Thiele and Thomas Utegaard, Consolidated engineers.

To Discuss New Timber Association

Formation of a cooperative timber management association will be discussed at a meeting at Eau Claire, Wis., August 21. It would supervise logging operations on 15,000 acres of woodlands in Ashland, Bayfield and Sawyer Counties of Wisconsin. A timber manager would be hired who would be charged with the duty of inaugurating a long-time logging program, with selective cutting and sale so as to prevent denuding the areas by removing only mature pulpwood and lumbering logs. The meeting was arranged by the University of Wisconsin extension service and the Wisconsin Conservation Commission at the request of 28 of the land owners.

More Power for Fox River Mills

Installation of another generator in the new power plant of the municipal utility at Kaukauna, Wis., will be made soon, according to H. F. Weckwerth, manager. The generator has been shipped and will be ready for use about October 1. It will produce 3,000 additional kilowatts, doubling the plant's capacity, and will augment the power supply for mills along the Fox River.

Coal Shipments Are Speeded Up

Coal shipments from docks at Green Bay, Wis., to mills of the Fox River Valley have been speeded up by the Fox River Navigation Company, operating tugs and barges on the Fox River. Considerable delay had been experienced because of high water difficulties, but Ben G. Prugh, manager, estimates that scheduled shipments will be completed before the fall freezeup. The season is one of the busiest in the company's history, to obviate a shortage of supply for the mills next winter.

Mill Picnics Are Largely Attended

Large crowds have been attending mill picnics in the Fox River Valley. The Gilbert Paper Company, Menasha, Wis., had 1,300 present Sunday, August 9, and the Appleton Coated Paper Company, Appleton, Wis., had 600 in attendance on the same day at Telulah Park at Appleton. Approximately 1,500 attended the outing Saturday, August 8, of the Hoberg Paper Mills, Inc., at Green Bay, Wis. At this picnic, 47 employees who had worked for the company from 25 to 50 years were presented with war bonds. J. M. Conway, president, made the presentations, and other speakers were Frank J. Kuhl, collector of internal revenue, Milwaukee, Wis., H. G. Wintgens, vice-president and sales manager of the company, and William De Breau and Alex Schoen, representatives of paper workers' unions.

Appleton
WIRES
ARE GOOD WIRES
Appleton Wire Works, Inc. Appleton, Wis.

Improvement Indicated

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 17, 1942—While the local paper market is far from satisfactory, there appear to be signs that would indicate the general situation will improve slightly by the end of the present month at least. Requirements from industrials up to their ears in war contracts continue good, but the demand which has been the mainstay of the jobber, the ordinary consumer, continued low.

A fair demand, however, was noted for bags and wrapping paper during last week. This is the first time since everybody went more or less crazy about the paper situation and conservation, that there has been any appreciable improvement. There still is a tendency on the part of the public to conserve paper and it likely will remain for the duration, but the sharpness of the conservation edge is becoming a trifle blunted. With local warehouses crammed with paper stock and rags, it is becoming apparent that there is not the critical situation that at first was pictured and the public is becoming aware of the fact.

Last week saw a fair demand for waxed paper containers for the ice cream trade and milk tract. However, the dairies in Indiana, which at one time last year had developed a real demand for waxed containers for milk are returning to glass bottles. Box demand continued about the same last week. Local factories are producing about to capacity, but most of their output is being diverted to war industries.

Newsprint demand is only fair. Every effort is being made by the larger papers in the state to increase domestic lineage to replace that lost because of so many items nationally advertised going off the market. For the most part, papers in the larger cities are being fairly successful in this, but the smaller town papers are suffering.

Paper specialties were sluggish last week, but tissues continued to move in fair volume.

Building paper remained slow and roofing the same.

Local dealers reported a fair demand for rags last week, but they are convinced that most mills have adequate inventories and are not looking for much improvement in demand.

The waste paper demand continued dull with prices showing little change from previous quotations.

Felt Cleaners **are only part of the picture of economical, satisfactory pressing of paper. Modern designing of felts makes it easier to keep felts clean and porous.**

A Draper **representative, thoroughly posted on the theory and practice of felt designing will be glad to discuss your problems with you.**

This service costs you nothing, but may profit you much. Let us know when to send a *Draper* man.

Draper Felts Favor Efficiency

DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856 CANTON, MASS.

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 115 August 20, 1942 No. 8

COMING EVENTS IN PAPER INDUSTRY

New England Section. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

Delaware Valley Section. Technical Association of the Pulp and Paper Industry—First Friday of each month at the Engineers Club, Philadelphia, Pa.

Lake States Section. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

Kalamazoo Valley Section. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

Technical Association of the Pulp and Paper Industry, Fall Meeting, Statler Hotel, Boston, Mass., September 29-October 1.

INDUSTRIAL ACCIDENTS

It is gratifying to note that the number of industrial accidents in paper and pulp mills and in all industries was being steadily reduced up to 1940. The numerous safety organizations have done and are doing commendable work in awakening the interest of employees in the importance of taking precautions for safety while at their daily work, and likewise have stimulated interest in employers to increase safeguards for their workers. In the annual report of the Bureau of Labor Statistics for the year 1940, fatal accidents totaled 18,100, compared with 16,400 in 1939, and 1,782,000 workers were temporarily disabled. The only reductions occurred with regard to permanent partial impairment of 89,600 persons in 1940, compared with 109,400 in 1939. The report states that "the increases are chargeable to increased employment, longer hours, and a relaxing of safety precautions in industries which experienced sharp increases in employment."

Although the frequency changes, expressed in the number of reportable injuries in the paper and pulp industry per million hours of exposure, was substantially higher from 1940 to 1941, the change from 1926 to 1941 was 67% lower. An increase in the severity rate, expressed in the number of days lost as the result of reportable injuries, per 1,000 man-hours of exposure, was higher from 1940 to 1941, but 55% lower from 1926 to 1941.

The annual statistical report of the National Safety Council, 20 North Wacker drive, Chicago, Ill., just issued, on accidents in the paper and pulp industry states that "1941 injury records were the worst in recent years. Injury rates have increased since 1938. Increases of 11% in frequency and 5% in severity from 1940 compare unfavorably with an average rise of 8% in frequency and an average decrease of 8% in severity for all industries. Operations, according to man-hours worked, expanded rapidly during 1941. The increase in new employees, addition of new equipment and speed-up in production, was accompanied by higher rates, particularly in remanufacturing, which was 38% for frequency and 61% for severity. Rates soared in box and container factories and there were also sharp increases in the rates for board mills. The industry's unfavorable 1941 experience was partly due to higher rates in large and middle-sized plants. The only improvement was an average reduction of 19% in the severity rates of small units. More temporary total disabilities accounted for most of the increase in the industry's frequency rate. The frequency of fatalities increased, but the rate for permanent partial disabilities was lower so the industry was fortunate in its experience with serious injuries last year. This is the principal reason for the small increase of 5% in severity as contrasted with an 11% rise in frequency."

Commenting on the safety problem in small plants the Council reports "Small paper and pulp mills, like small organizations in most industries, had the highest injury rates. Their average 1941 frequency rate of 21.23 was 28% higher than the average rate for large mills. Severity rates averaged 14% higher than for large mills. Large units have made the most improvement in their records in recent years. Net reductions since 1933 were 16% for frequency and 19% for severity. The outstanding feature of the 1941 experience of the entire industry was the improvement from 1941 in the records of newsprint mills. Reductions were 6% for frequency and 18% for severity. A much smaller group of pulp mills also had rate decreases. Wrapping mills had by far the worst records among paper mills, averaging 27.87 for frequency and 3.06 for severity. Roofing mills, which had the lowest injury rates, had sharp increases in both rates from 1940. The highest 1941 injury rates were in board mills, averaging 28.40 for frequency and 2.61 for severity. Box board mills had the worst records. The safest departments in the industry during the past three years were in finishing, stock preparation, and grinding. Frequency rates were less than 15.0 and severity rates averaged under .50. The major prevention problems were mostly in yards, handling and shipping, wood rooms and paper and board making departments. Injury rates in these departments averaged above 20.0 for frequency and 2.4 for severity."

In commenting on the circumstances and causes of accidents based upon 1,000 reports made by participants in the Paper Industry Safety Contest, the Council stated that "Ten types of equipment and materials were involved in 65% of the accidents. Accidents were more numerous on floors, stairways, and similar surfaces and amounted to 14% of the total. The nip of paper machines, calenders, and

winders was the principal hazard in the industry. Nip accidents were somewhat less numerous than those involving floors, etc., but they resulted in more serious injuries." Personal cause is attributed to have caused 779 accidents; mechanical cause 751.

Citing no-injury records as the best all-time records known to the National Safety Council, representing the number of continuous man-hours worked without a disabling injury, the following concerns and injury free man-hours were given: Book and Specialties mills, Hollingsworth & Whitney Co., Waterville, Me., 3,343,623; Newsprint, The St. Croix Paper Company, Woodland, Me., 3,055,551; Paper Goods Manufacturing, The White Corbin Division of the U. S. Envelope Company, Rockville, Conn., 2,960,884; Boxboard, Cornell Wood Products Company, Cornell, Wis., 1,750,000; and Bird & Son, Inc., Phillipsdale, R. I., 1,420,095; Box-Container, Young Bros., Providence, R. I., 1,128,937; Tissue, The Crystal Tissue Company, Mill No. 1, Middletown, Ohio, 706,316.

From the above report and figures it seems apparent that while the trend to increased safety in the industry has been steadily upward priod to 1938, much remains to be accomplished. The achievements of the mills cited by the Council in its report should serve to stimulate the endeavors of concerns with less favorable records. A careful study of the whole report should in itself encourage measures to achieve lower accident rates throughout the entire paper and pulp industry.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1942		Corresponding Weeks—1941	
July 4..(Holiday Week)	67.6	July 5	72.8
July 11	67.2	July 12	95.2
July 18	81.7	July 19	100.7
July 25	80.2	July 26	101.9
August 1	79.8	August 2	100.5
August 8....(Preliminary)	81.6	August 9	99.7

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1941	85.6	89.7	92.2	96.0	98.7	99.3	94.2
1942	104.5	103.9	102.9	100.3	95.4	87.3	75.4

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1941	101.0	99.7	105.2	106.2	100.4	97.4
1942	....	....	....	....	....	....

COMPARATIVE YEARLY SUMMARIES

	1935	1936	1937	1938	1939	1940	1941	1942
Year to Date..	68.3	77.8	87.6	68.0	78.6	86.9	93.8	94.9
Year Average..	69.9	80.4	79.8	71.5	83.4	85.6	97.4	...

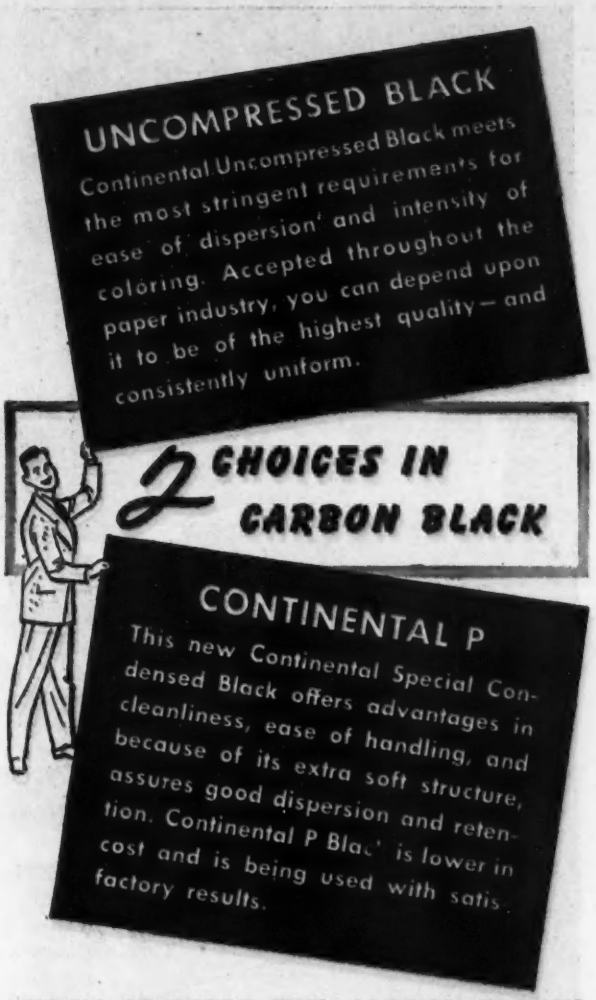
* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

PAPERBOARD OPERATING RATIOS †

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1937	83	89	89	91	88	80	69	77	72	70	57	47	75
1938	56	63	63	60	60	59	59	60	70	73	67	61	64
1939	65	73	76	74	69	73	68	77	82	91	88	77	77
1940	78	75	74	76	82	85	77	79	78	85	82	77	78
1941	81	88	89	89	91	94	92	98	95	99	98	90	92
1942	102	101	101	95	82	72	68	..	..	..	..	..	..

Week ending July 4, 1942—59
Week ending July 11, 1942—82
Week ending July 18, 1942—71
Week ending July 25, 1942—74
Week ending Aug. 1, 1942—76
Week ending Aug. 8, 1942—75

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Assn.


UNCOMPRESSED BLACK
Continental Uncompressed Black meets the most stringent requirements for ease of dispersion and intensity of coloring. Accepted throughout the paper industry, you can depend upon it to be of the highest quality—and consistently uniform.
2 CHOICES IN CARBON BLACK
CONTINENTAL P
This new Continental Special Condensed Black offers advantages in cleanliness, ease of handling, and because of its extra soft structure, assures good dispersion and retention. Continental P Black is lower in cost and is being used with satisfactory results.

WHICH OF THESE TWO CARBON BLACKS BEST SUITS YOUR SPECIAL NEEDS?

Are you using the right carbon black? Continental offers you the choice of two types, each of which offers advantages when used under certain conditions and for certain purposes. One is Continental Uncompressed and the other is Continental P. It will pay you to make a careful check-up and determine which will give you the most satisfactory results. We will gladly help you in making this check-up and give you expert assistance in using the type you select in order to obtain greatest efficiency and economy.

Both Continental Uncompressed and Continental P are produced under an exceptionally rigid system of control. Continental is a modern company, with a production and technical staff of long experience and special training in the manufacture and use of carbon black. Ask our staff to help you select the right Continental Black best suited to your needs.

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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

The Importance of Cuprammonium Viscosity Testing in the Preparation of Rag Half-Stock

By Helen U. Kiely[1] and E. A. Bieniek[2]

The cuprammonium viscosity test is one of the most valuable tests that are made in the preparation of rag half-stock. From the time raw rags enter the boiler until they are used in the beaters, close supervision must be kept to insure the best possible half-stock from a given rag. The viscosity test as a means of control has a special value for this purpose.

Throughout the processing of rags, there is a continual degradation of the rag fibers, depending upon the cooking formula and the degree of bleaching. The final effect of this breakdown will be noted in the sheet of paper made from the rags. Without going into the discussion of the theory of cuprammonium viscosity testing, this paper will attempt to give a general picture as to the applicability and importance of viscosity testing in rag half-stock preparation. Rags are subjected to cooking, washing, bleaching, and draining which all have their effects on the final properties of the half-stock. All viscosity tests that were made for the results given in this paper follow the TAPPI Standard Methods.

Raw Material

The first thing to consider is the raw material where strength and permanency are of importance. We use new unbleached rags such as unbleached muslins and hosiery. This grade of rag has a long twisted staple of good strength. In quality papers only white and unbleached rags are used, however, many new colored rags have a definite value being very strong—blue overalls is a rag of this type.

There are a few strong new colored rags, and rags dyed with indigo, used for special purposes, and in this class we have fancy shirts, percales, prints, and washable prints. The fiber in this class of rags is weak before processing due to the inferior staple of cotton used in manufacturing to a high bleached white base. The relationship in strength of fibers in the various types of rags can be obtained by viscosity tests.

The viscosity test is made on a representative sample. Ten grams of rags are weighed to centigrams and covered in a 400 ml. beaker with 300 ml. of a solution containing 0.5 grams of caustic soda. Four such beakers may be cooked at once in a seven-quart aluminum household pressure cooker containing water almost to the level of the liquid in the beaker. Relief value should be closed after all the air has been blown off by steam and cooking is continued for two hours under ten to twelve pounds pressure. After the cook, the rags are washed at once, air dried and ground for viscosity testing. The grinding is done in a Koerner grinder, a high velocity rotating toothed wheel inside of a toothed casing. The actual viscosity test was made according to the TAPPI Standard.

Cooking

The importance of cooking is to soften the rags and prepare them for use in the manufacture of paper. The degree of this softening action can be measured by viscosity tests. Heat (temperature) pressure, time, and cooking chemicals are variables that can be regulated to give a desired result. For the most part temperature, pressure, and time are the same for most rags or are changed very little. They all have an adverse effect on viscosity. The greatest changes in viscosity come from the use of chemicals. They attack the outer walls of the cotton fiber thus weakening the fiber and producing lower viscosities.

In cotton fibers the individual fiber is a single unit of structure. This long cell or tube contains a lumen or central canal containing protoplasm running through its center. On maturing, the cell collapses and produces a flat, ribbon like structure. Surrounding the lumen is a secondary wall of cellulose made up of concentric rings of growth, similar to yearly rings in the cross section of trees. On the outside of this thick secondary wall is the primary wall of cuticlar spiral fibrils. As the cotton fiber is processed in textile manufacturing, it is subjected to mild and harsh chemicals. The more drastic the chemical action is, the more the outer layers of the fiber disappear. Thus there is a weakening action as shown by viscosity examinations. We must not lose sight of the fact that an ideal viscosity is not the only goal we

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[2] American Writing Paper Corp., Holyoke, Mass.

are seeking. There are other factors to be considered. The half-stock must be usable. Chemical concentrations are higher when color removal is necessary. Hence there is a greater viscosity drop than when chemicals are used just to soften and remove foreign materials like waxes and fillers. Caustic soda cooks have a harsh effect on rag fibers with a lowering of viscosity much more than lime and soda ash cooks.

Washing

After cooking, the cooked rags are sometimes allowed to stand around under the boiler and in stock cars prior to washing. There is a decided softening and lowering of viscosity of the rags by this practice. The washing step does not affect the viscosity.

Bleaching

If the rags up to this point have been cooked properly, they can be spoiled by improper bleaching. Most mills use a calcium hypochlorite solution as a bleaching agent. The chlorine liberated indirectly attacks the cellulose fibers producing cellulose compounds not suitable for paper making fibers. The extent to which that damage is done can be measured by viscosity tests.

The amount of bleach added to the rags should be just enough for the desired removal of foreign material, color and dirt. Any excess bleach will lower the strength of fibers with a corresponding decrease in viscosity. Accelerating agents such as acids, time and temperature all hasten the bleaching action and also lower the viscosity. If the final color in the rags is obtained in the washer, no excess bleach should be put with the rags when dropped into the drainer other than a residual to prevent bacterial action.

Drainage

Drainers are primarily used for the removal of water. This water is usually the dilute bleaching solution in the washers. If any excess bleach is put in the drainer, there will be a continual degradation of the cotton fibers until all the bleach is gone. After a week's time the water drainage almost ceases. The moisture content is anywhere from 55 to 95% and one can readily see that a great deal of bleach will remain to work on the rags, if there is an excess present in water. Most damage is done in the first four or five days of drainage; beyond that there is just a small drop of viscosity.

Conclusion

When proper control is exercised in the processing of rags, a good strong half-stock can be expected, if the original rag had a strong long staple. The object is to attain the highest viscosity obtainable under existing conditions and for the desired results. As a consequence of good half-stock, papers with high physical characteristics can be made.

Rags of higher viscosity than 500 c.p. are not too desirable, for they require extreme care in beating to produce all available strength. A table is given in order to give a better picture and understanding of what happens to the viscosity of the rags as they pass through the various processes of conversion into half-stock. Variables only are indicated, other conditions being equal.

I. COOKING OF RAGS

A. Effect of Chemicals

	Viscosity (centi-poises)
Series 1	
a. 2% caustic soda	252
b. 5% caustic soda	102
c. 15% quick lime	336
Series 2	
a. uncooked rags	546
b. lime cook	173
c. caustic soda cook	104
Series 3 (Type R Rag)	
a. 1% lime 2% soda ash	1150
b. 10% lime 5% caustic soda	370
(Type L Rag)	
a. 1% lime 2% soda ash	68
b. 10% lime 5% caustic soda	43

B. Effect of Temperature and Pressure

Series 1 (Type S Rags)	*Temperature* (° F.)	*Pressure* (p.s.i.)	*Viscosity* (c.p.)
a.	250	40	194
b.	270	40	167
c.	290	40	122
d.	315	60	58
Series 2 (Type N Rags)			
a.		40	225
b.		60	201
c.		80	112
d.		100	106
e.		120	84

II. BLEACHING PROCESS

A. Effect of Concentration and Drainage Time

	Time	*Viscosity*
1. Rag unbleached		60
Series 1		
a. treatment 1.48% Cl 0.77% alum	1 Hour	48.5
b. same	2 Hours	31.1
c. same	6 Days	12.6
Series 2		
a. treatment 1.98% Cl 1.51% alum	1 Hour	41.1
b. same	2 Hours	19.8
c. same	6 Days	8.9

B. Effect of Bleach Concentration and Accelerator

Type M Rags	*Bleaching Powder*	*Alum*	*Viscosity*
a.	.38	..	102
b.	2.77	.93	45

III. DRAINAGE

A. Effect of Draining Time

Series 1	*Days in Drainer*	*Viscosity*
a. cooked and washed	0	24.0
b. cooked, washed & bleached	4	13.4
c. cooked, washed & bleached	24	11.8
Series 2		
a. unbleached	0	196
b. bleached	12	67
c. bleached	20	57
Series 3		
a. unbleached	0	90
b. bleached	5	17
c. bleached	12	15

APPENDIX

The variables that affect the viscosity of rags and the order of importance with the most detrimental ones listed first are:

1. Cooking Chemicals—high alkalinity more than low alkalinity.

2. High bleaching temperature.
3. Bleaching Chemicals and accelerators in excess.
4. Draining with excess bleach.
5. Cooking temperature and pressure.
6. Cooking time.
7. Drainage with only small bleach residual.

Preparation of Cuprommonium Solution

The solution contains 15 grams copper, 240 grams ammonia, and less than 0.5 grams nitrous acid per liter.

The reaction vessel is a glass cylinder 20 inches high and 2.5 in diameter, surrounded by a metal jacket filled with ice for keeping the reaction vessel cool.

The vessel is filled with copper filings, approximately 1200 ml. of concentrated ammonia solution (density 0.90) and 3 grams of cane sugar. Air is aspirated through the mixture at the rate of 10 liters per hour through a wash bottle containing concentrated ammonia.

Approximate copper content can be compared colorimetrically with standard solution, both diluted ten fold, and when it is distinctly above 15 grams per liter, the reaction is stopped. After standing ½ hour the solution is syphoned off and allowed to stand in stoppered bottle, the residual copper being washed and used in subsequent preparations. The clear liquid is again syphoned off, analyzed for copper and ammonia, and adjusted to the required concentration by dilution with water and ammonia. The nitrous acid content is also checked by analysis and the preparation rejected if it proves to be above 0.5 grams per liter which is seldom. For this test 15 ml. concentrated H_2SO_4 is drawn into nitrometer and carefully covered with one or two cc water before gradually admitting 5 ml. cuprammonium. Hold mercury reservoir low and neutralize each small portion before adding more to avoid vigorous reaction. The cuprammonium is stored in a blackened bottle provided with a tubule and tap at bottom and connected at top through a vessel containing pyrogallol with a gas holder—conveniently a Kipp apparatus—filled with nitrogen. This method has been in use for some time and yields fairly reproducible results, its efficiency depending no doubt upon the large copper surface constantly available for oxidation.

Determination of Sodium by the Uranyl Zinc Acetate Method

TAPPI Tentative Standard T 623 m-42

This method, which is particularly applicable on account of its speed to chemical inventories of soluble sodium compounds about a mill, depends upon the precipitation of sodium in the form of sodium uranyl zinc acetate.

Note: The method is not applicable in the presence of Lithium or Strontium. (*See* note 8.)

Apparatus

The only special apparatus required is one or more porous porcelain or sintered glass crucibles, approximately 30 ml. capacity. Pyrex (Fine) or Jena (IG4) are satisfactory.

Reagents

1. *Uranyl zinc acetate reagent.*

A. Mix 50 grams or uranyl acetate dihydrate $[UO_2(C_2H_3O_2)_2.2H_2O]$, 30 grams (28.9 ml.) of 30% acetic acid, and 250 ml. of water, and warm to dissolve.

B. Mix 140 grams of zinc acetate dihydrate $[Zn(C_2H_3O_2)_2.2H_2O]$, 15 grams (14.5 ml.) of 30% acetic acid, and 250 ml. of water, and warm to dissolve.

Mix Solutions A and B while hot and let stand for 24 hours. Due to the small amount of sodium contained in the chemicals which make up the reagent, a precipitate of sodium uranyl zinc acetate may separate. This is desirable, because the final reagent should be saturated with the triple salt. If no precipitate forms, add a small quantity (a few milligrams should be sufficient) of sodium chloride to insure saturation. Remove any excess precipitate by filtering into a dry Pyrex bottle.

2. *Alcohol Reagent.* Saturate ethyl alcohol (95%) with sodium uranyl zinc acetate.

3. *Ether.*

Preparation of Sample

Dissolve an accurately known amount of the sample in water and adjust to approximate neutrality by adding NH_4OH or HCl if necessary. Filter off any undissolved material and make up to a known volume with water.

The dilution should be such that 1 ml. of the solution contains not more than 8 mg. and preferably not less than 4 mg. of sodium (Na).

Procedure

Pipet 1 ml. of the sample solution (*see* notes 1 and 2) into a 20-ml. beaker. Add 15 ml. of the uranyl reagent and mix *vigorously* with a small glass stirring rod for about 20 seconds. Let the solution stand for at least one hour (*see* notes 3 and 4) and then filter with suction through a weighed porous porcelain or sintered glass crucible. Transfer the precipitate completely to the crucible and wash 5 to 10 times with 2-ml. portions of the reagent. Remove the latter by washing the precipitate five times with 2-ml. portions of 95% alcohol (saturated with the triple salt) and finally with four or five small portions of ether. The amount of ether used is immaterial since the precipitate is insoluble in this liquid. Aspirate air through the crucible until the ether is removed. Wipe the outside of the crucible with a clean, dry, lintless cloth, place in the balance case and weigh after about 15 minutes. Reweigh after intervals of 15 minutes or more until the weight is constant. (On account of the high ratio of the weight of the precipitate to its sodium content, about 70:1, it is

not necessary to dry the precipitate and crucible in a desiccator.)

Calculation

The precipitate has the composition

$$NaC_2H_3O_2 \cdot Zn(C_2H_3O_2)_2 \cdot 3UO_2(C_2H_3O_2)_2 \cdot 6H_2O.$$

The weight of the precipitate multiplied by 0.01495 gives the weight of sodium (Na), or by 0.02015 gives the weight of sodium oxide (Na_2O).

Precision

Duplicate determinations should agree within 1.0% of their weight.

Notes

1. If preferred, a more dilute sample solution may be prepared and a large volume pipetted out for analysis with subsequent careful evaporation to 1 or 2 ml. before addition of the reagent.

2. The ratio between the volumes of the solution of the sodium salt and of the reagent should be 1 to 15. In case 2 ml. of aqueous solution are used, 30 ml. of the reagent should be added.

3. The precipitation of the triple salt is a time reaction. Satisfactory results are obtained by collecting the precipitate after standing for one hour, provided that the reagent and test sample were vigorously stirred; otherwise several hours are required for complete precipitation.

4. The solubility of the precipitate increases greatly with rise in temperature, making careful temperature control necessary. Consequently, the temperature of the solution at the time of filtration should be adjusted to within 1 deg. C. of that at which the reagent was filtered from the triple salt. If any triple acetate residue appears in either the 95% alcohol or the uranyl zinc acetate reagent it should be filtered off just before use.

5. The precipitate is only slightly soluble in 95% alcohol (more soluble in absolute alcohol) and if the amount of sodium present is 4 mg. or more, it is of little consequence whether or not the alcohol is saturated with the triple salt before use.

6. The precipitate is readily soluble in water, hence the necessity for an excess of reagent.

7. Acetone may be used, if desired, in place of ether in the final wash, but in this case it will require slightly more time to bring the crucible and contents to constant weight.

8. Potassium, unless present in large amounts (25 mg. per ml.) does not interfere. NH_4 salts, even in large amounts, do not interfere; but Li or Sr salts lead to high results. Ba, Ca, and Mg, in reasonable amounts, do not interfere unless the reagent contains sulphate as an impurity. Phosphates, silicates and large amounts of organic acids, such as oxalic and tartaric, interfere. Although the alkaline earth metals and various metallic ions form triple salts in the same way that zinc does, it seems that they do not interfere as long as the Zn concentration is relatively so much greater than their own—i.e., as long as such other ions are present in no more than reasonable amounts.

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REPRINT NOTE: Reprints of TAPPI Tentative Standard T 623 m-42 may be obtained from the Technical Association of the Pulp and Paper Industry, 122 East 42d Street, New York, New York, at 25 cents each.

Hoberg Celebrates 50th Anniversary

The Hoberg Paper Mills, the first paper mill in Green Bay, and one of the first in the Middle West is celebrating its 50th Anniversary.

To celebrate this important event 1,500 men, women and children attended an employee-family picnic at the Fair Grounds last Saturday.

Both divisions of the company were closed down for the day. Activities opened at 10:00 o'clock A.M., with a softball game between the Hoberg team and that of the Badger Paper Company of Peshtigo, Wisconsin. The latter club won, 6 to 4.

The high-light of the afternoon gathering was a program in front of the Fair Grounds grandstand in which 48 Hoberg employees, who had worked for the company continuously from 25 to 50 years, were presented U. S. War Bonds, in recognition of long and faithful service by J. M. Conway, President and General Manager of the company.

Mr. Conway talked briefly, and others on the program included H. G. Wintgens, Vice-President and Sales Manager of the company, William DeBreau, representing the Papermakers local union and Alex Schoen, representing the Pulp and Sulphite Workers union. Frank J. Kuhl, Milwaukee, State Administrator of the Treasury Department War Savings staff gave the employees a message on the importance of supporting the war effort by buying U. S. War Bonds.

The founding of the Hoberg Paper Mills of Green Bay in 1892 marked the first step toward establishing Green Bay as one of the foremost personal-use paper manufacturing centers in the world.

The company started in with one paper machine and since has expanded its properties and activities to where six large machines are producing a complete line of towels, toilet tissues, napkins and cellulose products.

The mill today is self-contained, controlling the entire processing of products from the pulpwood tree to the finished article, ready to be sold to the consumer, hence the Hoberg slogan "From Evergreen to Evergreen."

Goes with Bureau of Standards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 17, 1942—J. K. Missimer has joined the staff of the paper section of the National Bureau of Standards as paper maker. He, together with M. J. O'Leary who has served for a number of years as paper maker, will operate the semi-commercial paper-making equipment of the Bureau. This equipment is now being used extensively on work related to the war.

Mr. Missimer is well qualified for the position as during his former connection with the Standard Paper Manufacturing Company of Richmond, Va., he had considerable experience in their semi-commercial experimental paper mill, as well as in their commercial mill.

Hamilton Vose Gets Commission

Hamilton Vose, Jr., president of Berkshire Papers, Inc., has been commissioned Lieutenant Commander in the United States Navy, and is now stationed at the Potomac River Naval Command, Washington, D. C.

Cotton Pulps. III.

Effects of Supplementary Materials on Beating*

By D. M. Musser[1] and H. C. Engel[1]

Abstract

The beating of cotton and wood pulps with certain organic supplements has been investigated. Varying improvements in papermaking properties were observed. Water-soluble methyl cellulose and aqueous formaldehyde were found especially effective in decreasing beating time and increasing sheet strength. The laboratory results are briefly discussed.

The possibility that certain organic substances in the beater might shorten the time required for beating virgin cotton fiber has been examined experimentally. The results obtained with soluble starch, sucrose, apple pectin, gelatin, flex, and psyllium seed extracts, water-soluble methyl cellulose, and formaldehyde are described in this paper.

Many organic materials added to pulp in the beater are known to have some influence upon papermaking properties. Common examples are sizing agents. The primary purposes for their use have been widely studied and reported; their action during the beating operation is less clearly understood. Rosin is believed to retard hydration *(1)*. Certain starches, according to Weber, Shaw, and O'Leary *(2)* and also Strasser *(3)*, increase the bursting strength and breaking length at the expense of tear. The effect of proteins on the rate of property development in the beater is not commonly known.

Obermanns *(4)* found that artificial degradation of pulp prior to beating or addition of hemicelluloses to the beater lessens the time necessary to beat rag pulp to a given freeness and increases the strength properties to certain maximum values. Substantiation of these results was furnished indirectly by the experiments of Richter *(5)* and of Wenzl and Congehl *(6)*, who observed that wood pulps beat with greater difficulty as the hemicellulose content is reduced by mercerization with alkali. Young and Rowland *(7)* confirmed the observations of Kanamaru *(8)* and Grogan *(9)*, who reported a relationship between pentosan content and swellability of softwood pulps. Schwalbe *(10)* claimed that beating was expedited in the presence of mucilage-forming substances, such as highly degraded cellulose, flax, and hemp chaff.

Addition of sugar to the beater appears to accelerate hydration *(11)* and to improve the physical properties of the sheet *(12)*. Bell *(13)* stated that glucose may be employed to promote the "wet" beating effect for glassine papers. Nakano *(14)* demonstrated that dilute solutions of ethyl alcohol, glycerol, or lactic acid impeded beating. Acetic acid may speed up the swelling of alkaline pulps and reduce the beating period *(15)*.

Treatment of the beaten pulp with organic colloidal materials has recently attracted attention. Wollwage *(16)* found that deacetylated Karaya gum markedly decreased fiber flocculation, whereas wetting agents in parallel experiments had no effect in this respect. Erspamer *(17)* showed that Sveen glue and starch under certain conditions flocculate pulp, but that locust-bean gum and methyl cellulose were powerful dispersing agents. Broadbent and Harrison *(18)* investigated a large number of naturally occurring gums and mucilages, including Karaya gum, bassora, rose mallow, cactus, locust kernel, linseed, quince seed, and psyllium seed extracts. The increased physical strengths which the mucilages had effected were explained to result solely from improved sheet formation.

The suggested mechanisms by which organic substances bring about changes in the papermaking characteristics of pulp in the beater may embody one or more of the following effects: increased swelling of the pulp, actuation of fibrillation, improvement in sheet formation by a deflocculating action, modification of the electrokinetic potential of pulp particle surfaces or their hydrophilic character, chemical attack on cellulose, and impropement in fiber bonding in the final sheet through cementing action.

Preliminary Experiments

Beating experiments were carried out by us as previously described *(19)*. The number of hours of ball-milling required to develop the maximum bursting strength and breaking length was used as the criterion of speed of hydration.

Inasmuch as the constitutions of the added materials were not known in all cases, comparisons were made on solutions of equivalent viscosity rather than of equivalent composition. The viscosity of a 0.6% solution of methyl cellulose (Dow "Methocel", medium viscosity grade) was chosen arbitrarily as the standard. Five hundred ml. of solution of the required viscosity was added to 24 grams of moisture-free pulp.

The beating time versus breaking length curves are presented (Fig. 1) for a second-cut linters pulp to which various materials were added. From the shape of these curves and the time of occurrence of the maximum breaking length, it can be readily seen that soluble starch, sucrose, and psyllium seed extract cause a decrease in the beating time. Apple pectin and flaxseed extract behave similarly. Methyl cellulose and formaldehyde bring about a pronounced increase in breaking lengths. Starch and psyllium seed extract also improve sheet strengths. Gelatin appears to inhibit hydration. On these supplementary materials, methyl cellulose and formaldehyde gave the greatest improvement. Their effect upon cotton and wood pulps was studied in detail.

Methyl Cellulose

Trial experiments indicated that when the beating time is greater than 2 hours methyl cellulose may be added to the pulp in either solid or solution form. Best results were obtained when the methyl cellulose

* Contribution from the Multiple Industrial Fellowship of the Cotton Research Foundation.

[1] Mellon Institute, Pittsburgh, Pa.

was milled with the pulp during the entire beating period. In the range of concentrations investigated, dissolved methyl cellulose produced no significant change in the strengths of handsheets where added directly to the beaten pulp suspension.

The proportion of methyl cellulose or its effective concentration in the beater liquor appears to determine in large part the physical characteristics of the paper sheet. The results obtained by beating hull-fiber pulp for 7 hours with various concentrations of low viscosity methyl mellulose are given in Table I. The percentage concentration is based on the weight of moisture-free pulp.

TABLE I.—EFFECT OF CONCENTRATION OF METHYL CELLULOSE ON HANDSHEET PROPERTIES

Concentration, %.....	0	1.2	6.0	12.0
Breaking length	2080	2170	2990	3760
Burst factor	15.2	19.0	25.4	35.3
Tear factor	57.2	83.2	79.7	74.1
Drainage, sec.	8.0	8.5	56.0	120.0

The breaking length, burst factor, and drainage seconds at a given beating time increase in value with increasing concentrations of methyl cellulose. The tear factor gradually decreases.

The data on the beating of hull fiber with 4 different viscosity types of methyl cellulose are recorded in Table II. The concentration of methyl cellulose was 6% and the beating time was 7 hours.

TABLE II.—EFFECT OF METHYL CELLULOSE OF DIFFERENT VISCOSITIES

Viscosity type	None	Low	Medium	High	Extra High
Breaking length....	2040	2990	2890	3700	3550
Burst factor	15.5	26.8	23.4	33.8	31.8
Tear Factor	56.4	89.1	84.1	88.4	87.2
Drainage, sec.	8.0	10.0	9.0	10.0	15.0

It is seen that, for a given weight of methyl cellulose, the high and extra high viscosity types are more effective in improving the physical properties of paper than the low or medium viscosity types.

Figure 2 is a graphic representation of the change in tear factor, breaking length, and burst factor in the beating of hull-fiber pulp with and without methyl cellulose. The improvement in properties is generally uniform over the entire beating range studied.

Experiments similar to those on hull fiber were conducted with sulphite and kraft pulps. Typical

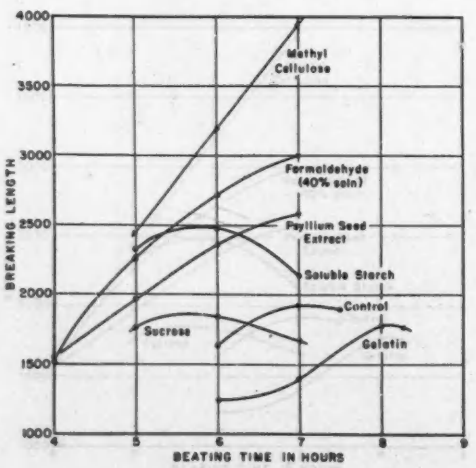

FIG. 1
Effect of Beating with Various Supplements on the Breaking Length

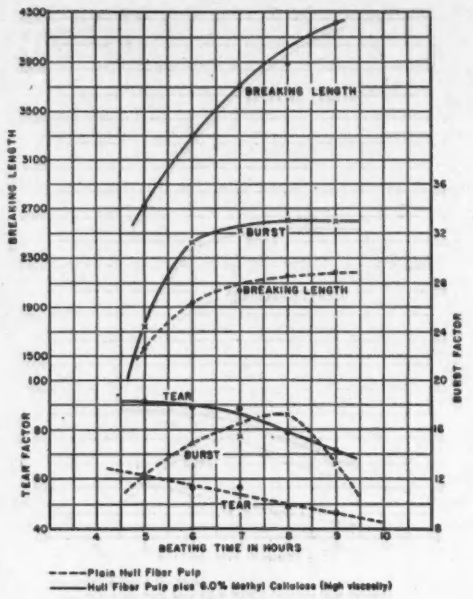

FIG. 2
Physical Properties Versus Beating with and without Methyl Cellulose

data obtained with high viscosity methyl cellulose are given in Table III.

TABLE III.—EFFECT OF METHYL CELLULOSE ON SULPHITE AND KRAFT PULPS

Pulp	Sulphite				Kraft			
Beating, hr..	0.5	0.5	1.5	1.5	0.5	0.5	1.5	1.5
Methyl cellulose, %.	0	6.0	0	6.0	0	6.0	0	6.0
Tear factor..	50.7	71.1	33.0	36.5	128.0	102.0	86.0	74.0
Breaking length	2680	2960	3980	4940	4430	6270	6270	7580
Burst factor.	17.2	22.1	27.0	37.6	40.8	58.2	57.4	73.6

The percentage improvements in fold values (Schopper) with varying amounts of high viscosity methyl cellulose are shown for a sulphite pulp in Table IV.

TABLE IV.—VARIATION OF FOLD WITH METHYL CELLULOSE CONTENT FOR SULPHITE PULP

Methyl Cellulose Applied, %	Improvement in Fold, %
0.5	90
1.0	200
3.0	370
4.0	660
5.0	1470

Estimation of methyl cellulose through methoxyl determinations *(20)* indicated that 30-40% of the applied amount was retained by the pulp. Adsorption phenomena may influence the content of methyl cellulose in the final sheet.

Excessive foaming which results from vigorous agitation of pulp suspensions containing methyl cellulose can be reduced by addition of small amounts of defoaming agent.

All tests were carried out on waterleaf sheets. No attempt has been made to apply sizing agents to pulps beaten in methyl cellulose solutions. The effect of methyl cellulose upon the opacity of hull fiber and kraft pulps, as measured by TAPPI standard method T 425 m-35, is shown in Table V.

TABLE V.—OPACITY OF HULL FIBER AND KRAFT PULPS BEATEN WITH METHYL CELLULOSE

Pulp	Opacity, %
Hull fiber, plain	87.0
Hull fiber plus methyl cellulose	68.0
Kraft, plain	61.0
Kraft plus methyl cellulose	49.5

Formaldehyde

In preliminary experiments it was found that treatment of cotton pulps with formaldehyde prior to beating had but slight advantage over the addition of formaldehyde to the beater at the outset of the beating operation. Like methyl cellulose solutions, aqueous formaldehyde was observed to have no appreciable influence upon strength properties where added to the beaten stock. Accordingly all runs were conducted by subjecting the pulp to formaldehyde for the entire beating period.

Bleached second-cut linters were beaten in solutions of formaldehyde at 3 different concentrations. Development of breaking length, burst and tear factors with beating time at the various concentrations is shown in Figs. 3, 4, and 5, respectively. These data indicate that the breaking length and burst factor increase up to about 20% formaldehyde, but higher concentrations appear to give rise to only slight additional improvements. The tear factor in all these cases falls off rapidly as beating progresses.

Unlike methyl cellulose, formaldehyde solutions develop certain maximum pulp properties. On prolonged beating both breaking length and burst factor begin to decline in value. The best strengths obtained in formaldehyde medium are below those found for a similar pulp in methyl cellulose solution.

Formaldehyde solutions swell cellulose and therefore may facilitate the fibrillation and beating process. Most of the substances studied are classified as deflocculating agents; accordingly their presence in the beater may bring about uniform beating and sheet formation. In addition, methyl cellulose forms films and may cement the fibers together, which action undoubtedly would contribute to increased sheet strengths.

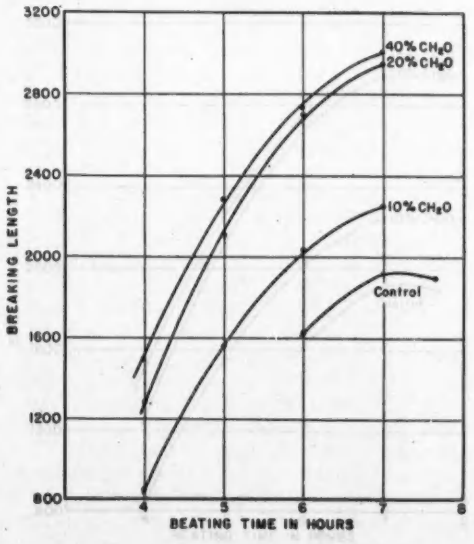

FIG. 3
Change of Breaking Length with Beating in Aqueous Formaldehyde

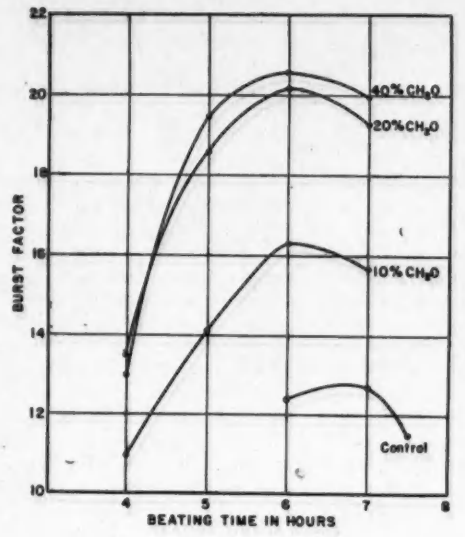

FIG. 4
Change of Burst Factor with Beating in Aqueous Formaldehyde

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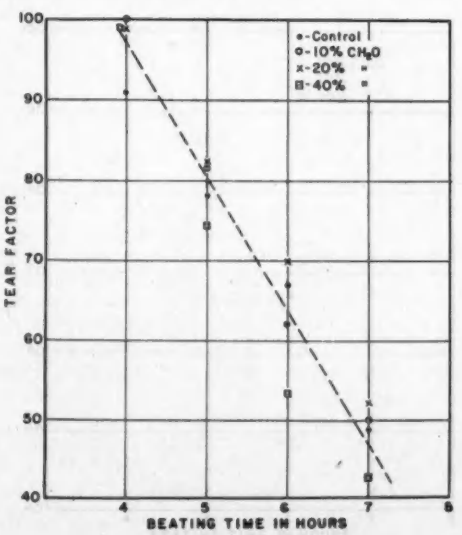

FIG. 5
Behavior of Tear Factor with Beating in Aqueous Formaldehyde

Pulp Bleaching*

A Literature Review December, 1940 through December, 1941

By John L. Parsons[1] and John C. Tongren[1]

At the request of the Pulp Purification Committee of the Technical Association of the Pulp and Paper Industry (TAPPI) this review of the literature on pulp bleaching and purification, covering the period December, 1940 through the year 1941, has been prepared. Previous literature reviews on pulp bleaching, beginning with November, 1937, have been published from time to time *(18, 19, 34)*.

A valuable contribution to pulp bleaching during 1941 in America and, in particular, to the bleaching of sulphate pulp, was the translation of Loeschbrandt's researches which originally appeared in *Kamyr Nachrichten (19)*. The translation was sponsored by the Pulp Purification Committee of TAPPI and was published in monograph form by the Association *(25)*.

In the third edition of Sutermeister's book on the "Chemistry of Pulp and Paper Making", John D. Rue has made a noteworthy contribution in the chapter on bleaching *(46)*. The subject is discussed from the modern viewpoint, and the chapter is especially recommended to those who desire a general knowledge of pulp bleaching. Other publications relating to bleaching include the valuable bibliography on the analysis of bleach liquors published by the Institute of Paper Chemistry *(51)*, and TAPPI Special Report 320 *(40)*. In the report was a summary of information on the methods of testing oxidizable materials in pulps, with especial attention to procedures for the control of the bleaching process. This information from a questionnaire survey was assembled by John D. Rue and presented at the 1941 TAPPI Fall Meeting at Ann Arbor, Michigan. The report, based on 78 replies to the questionnaire, covers *(a)* standardization of terms employed in connection with chlorine and chlorine compounds used in bleaching, *(b)* efficiency in the washing of pulps, *(c)* digester control and grading of pulps, and *(d)* proportioning the bleaching agent among the different bleaching stages.

"Chlorine reacts in at least two distinctly different ways depending on the conditions under which it is applied. It may react as a chlorinating agent or it may act as an oxidizing agent. Also it is applied in various forms . . . — e.g., the element itself or compounds such as bleaching powder, hypochlorites, and chlorites. The chlorine used to make the compounds may appear as such in the compound and represent the true chlorinating and oxidizing power of the compound, or it may be in part replaced in the compound by an equivalent proportion of oxygen. In all cases it is entirely correct to express the oxidizing power in terms of equivalent chlorine." For many years it was common practice to refer to the concentration of hypochlorite solutions in terms of their content of 35% bleaching powder. This chemical, however, has been gradually replaced with liquid chlorine which is converted in the pulp mill to a hypochlorite solution. The more accurate term *"available chlorine"* is now more often employed to express the concentration of a hypochlorite solution. A majority of the contributors to TAPPI Special Report 320 favor the selection and standardization of a term to express not only the concentration of bleach solutions but also the per cent bleachability or chlorine demand of unbleached pulps. *Available chlorine* appears to be the most satisfactory term for all purposes. It can be employed in expressing concentration of solution, or the amount required, added, and consumed in the chlorination or bleaching of pulp *(40)*. The general use of this term will eliminate much confusion which has existed in the industry.

Although the chief bleaching reaction is that of oxidation, there has been the tendency in recent years to consider the bleaching operation as a pulp purification process by which the impurities are removed with a high degree of selectivity by successively applied reactions. Typical of these reactions are those *(a)* of chlorine with residual lignin; *(b)* of sodium hydroxide with chlorinated residues, the alkali-soluble constituents of pulp, or the dyes found especially in sulphate pulps; and *(c)* of sulphur dioxide with ferric iron and other mineral constituents in the fibers *(46)*.

The war effort has of necessity curtailed the supply of chlorine available for bleaching purposes and a ceiling on bleached pulp brightness, as measured by the G. E. reflection meter, has been placed by government order *(32)*. There has been, therefore, a marked tendency on the part of many mills to utilize more efficiently the chlorine which has been allocated to them. The bleaching of wood dirt in pulp has received particular attention.

Chlorination Stage

The action of chlorine on unbleached pulp has recently occupied the attention of several investigators. Coster and Thieme *(8)* reported the following observations on the effect of chlorine on unbleached sulphite pulp made from western hemlock with a bleachability of 5.2% chlorine: *(a)* the reaction is the fastest when using chlorine gas (pH about 2), compared to hypochlorous acid (made from chlorine, water, and limestone), and to hypochlorous acid made according to U. S. patent 2,195,396; *(b)* chlorine exhaustion is more complete at 30 deg. C. than at 5 or 15 deg. C. while pH conditions and the physical properties of the pulp are unaffected, but pulp viscosity decreases with an increase in temperature; and *(c)* strength properties are little affected with concentration of chlorine. At least 75% of the total chlorine is consumed during the period of introduction. About 90 to 94% of the available chlorine is consumed during a 45-minute interval. A neutralizing treatment of the washed chlorinated pulp affords a ready means of removing more than 10% of the chlorinated products. Good results have been obtained by adding sodium hydroxide to the chlorinated pulp as it leaves the washer (pH about 9) and agitating the mixture for approximately one-half hour before washing again.

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 16-19, 1942.

[1] Member TAPPI, Hammermill Paper Co., Erie, Pa.

Larson *(24)* has studied the nature of lignin residues in unbleached sulphite pulp and chlorinated sulphite pulp. He claims that the residual lignin in these pulps is present as a sulphonated lignin. When an average sulphite pulp is chlorinated, lignin appears to be the only product removed; in the case of a hard bleaching pulp a considerable amount of carbohydrate material is also removed and the amount increases the greater the percentage of chlorine added. From 87 to 92% of the chlorine added during the chlorination stage can be recovered in the waste liquor, and 56 to 66% of the total is found as hydrochloric acid. Chlorination of pulps with 75% of the chlorine demand reduces bleachability values about one and a half times that of 35% of the chlorine demand. Even though over twice the quantity of chlorine is used, a portion is consumed by the already chlorinated lignin. Hot caustic extraction (2% at 80 deg. C.) is 10% more effective in lowering the bleachability of chlorinated pulps than cold extractions (20 deg. C.).

Recent researches on the chlorination of lignin at the Pulp and Paper Research Institute, Montreal, Canada, have been summarized in a comprehensive article by Hibbert and coworkers *(52)* with 58 literature references listed. According to these investigators, only a small portion of the lignin is removed during the aqueous acidic chlorination of unbleached pulp, although the lignin is made potentially soluble in alkaline solution. Probably this is due to the presence of carboxyl groupings which have formed at points in the lignin from which the methoxyl group was removed. The removal of chlorinated lignin from pulp is largely a physical process in which such factors as temperature and time of treatment control the degree of solution of the lignin in the alkaline medium. Chlorination proceeds almost instantly, but the solution of the chlorinated products in alkali is slow because of the slow rate of diffusion through the fibrous cellulosic structure. Similar phenomena involving the incomplete removal of a partially oxidized product may be the reason for the return in color of bleached pulps.

Chlorine and Hypochlorite Solutions

Further data on the solubility of chlorine in water were reported by Whitney and Vivian *(54, 55)*. Solubilities at 10, 15, 20, and 25 deg. C. under partial pressures of 0.06 to 1.0 atmosphere are tabulated. Using the new data, absorption coefficients for chlorine in water were calculated. Based on the new figures of Whitney and Vivian, Davis has published a nomograph *(10)* for the solubility of chlorine in water.

Hixson and Tenney *(15)* have developed a laboratory method of making chlorine from salt and sulphur. The method involves the anhydrous reaction of sulphur trioxide on sodium chloride to form unstable compounds which under different conditions decompose to form chlorine, sodium sulphate, and sulphur dioxide. The investigators report that "from a practical standpoint the process is probably industrially workable". Increased demand for chlorine and salt cake during the present emergency has emphasized the need for new sources of these materials.

The design and operation of equipment for the preparation of chlorine water and calcium hypochlorite are discussed by Whitney *(53)*, while in an address Lucain *(27)* treats of the preparation, properties, storage and handling, and the use of chlorine and hypochlorites. Roberts *(38)* claims that the initial installation cost of an unsettled bleach liquor unit is $8,000 to $10,000, compared to $30,000 for a settled bleach liquor plant. To make a satisfactory unsettled bleach liquor it is only necessary to pass milk of lime over a 100- to 200-mesh screen prior to chlorination. A 170-mesh screen gives a high rate of flow with only a small amount of recirculation. Additional economies for an unsettled bleach liquor plant are savings in labor, the possibility of using lower grades of lime, and chlorine economies.

Pulp Bleaching

In the manufacture of a bleached pulp from sugar cane bagasse Wells and Atchison *(49)* employed the following sequence of operations: first, a chlorine water treatment, washing, an extraction using 1% caustic soda, washing, and then a final hypochlorite bleach to give a pulp brightness of about 80. The total consumption of chlorine was about 4.5%. Honda, Nakamura, Aoki, Mima, and Goda *(17)* observe that the action of chlorine was to decrease the viscosity of bagasse pulp, made by the soda process, but there was only a slight effect on the copper number.

McGovern and Chidester *(29)* of the U. S. Forest Products Laboratory found that pulps prepared from loblolly pine heartwood using a magnesium-base cooking acid were slightly lower in bleach requirements than calcium-base pulps, and considerably higher than those of the sodium-base pulps. The increased effectiveness of pulping of the chips after air seasoning for 3.5 months was shown by the slightly lowered bleach requirements and somewhat increased purity of the pulps. The pulps of lower bleachability from the seasoned chips possessed lower strength values than the pulps from unseasoned chips.

In another series of experiments conducted at the U. S. Forest Products Laboratory on the pulping of slash pine (*Pinus caribaea* Morelet) by the sulphate process, Schwartz and Bray *(44)* reported that the pulps retained most of their original strength after bleaching to an adequate whiteness. The Rue method *(39)* of bleaching was employed, substituting sodium hydroxide for lime. Potassium permanganate was used instead of calcium hypochlorite in the final bleaching stage in two experiments. Before this treatment the pH of the pulp mixture was lowered to 2 by the addition of sulphuric acid. The bleached pulp was finally decolorized by adding an excess of sulphur dioxide to the stock. The authors believe that high alpha-cellulose values of the bleached pulps indicate a weakening of the primary walls of the fibers which results in a loss of pulp strength. Extraction of the pulp with only 1% of its weight of sodium hydroxide and careful bleaching with a pH of the solution above 8 yielded a product of good strength characteristics but of somewhat lower color. The use of permanganate to raise the whiteness did not materially affect the strength characteristics.

Frarkevicz and Bearse *(12)* noted that, when soda pulp was bleached at a pH of 11.2, the alpha-cellulose content was higher than in the case of pulp bleached to the same brightness but without the addition of alkali.

In bleaching chestnut pulps to low brightness values, tannin residues have little effect on the bleach demand. When a brightness above 70 is desired, however, more bleach is required for these pulps, according to Bard *(3)* who studied the effect of tannins on pulps from unextracted and extracted chestnut pulped to the same lignin content.

Experiments at the Forest Products Laboratory *(5)* on the pulping of sweet gum *(Liquidambar styraciflua)* showed that satisfactory bleached pulp could be made by multi-stage bleaching, including extraction with hot alkaline solutions, oxidation with either calcium hypochlorite or potassium permanganate or both, and final adjustment of the hydrogen ion concentration with sulphurous acid solution. Thorough washing of the bleached pulp to remove residues was found to be important in minimizing reversion of color.

To Hill and Hooks *(14)* was issued a patent comprising a method of bleaching kraft pulp in which the pH of the bleaching stages is an essential feature. The steps include *(a)* a chlorination of the noncellulosic constituents at pH 1-3 at a temperature not exceeding 25 deg. C., *(b)* washing, *(c)* treatment of the pulp with a hypochlorite solution at a pH 3.5-7 and about 35 deg. C., *(d)* washing, *(e)* caustic soda extraction at around 50 deg. C. and a pH above 8.0, *(f)* washing, and *(g)* a bleach in an alkaline hypochlorite solution at a pH 7-8.

Akim *(1)* has described the bleaching of soft and medium hardwood sulphite pulps using a multistage process.

The effect of heartwood decay in western hemlock on bleachability was described by Holzer *(16)*. The chlorine demand increased with the amount of decay in the wood. Pulp color was directly related to the heartwood decay in the wood. Schur and Baker *(43)* found that with a mixture of equal parts of balsam fir and spruce woods, under the same cooking conditions, there was an increase in the permanganate number of the resulting pulps as calcium-base acid was substituted for sodium-base acid. The total chlorine and bleach consumption correlated well with the permanganate numbers. As the percentage combined sulphur dioxide was increased the cooking yield and bleach requirement increased, yet there was no difference in bleached pulp yield or strength properties.

The nature of pH variations during bleaching depends chiefly on the buffering qualities of the bleaching solutions *(21)*. Over a wide pH range this buffer characteristic has been calculated.

Pulp Washing

The washing of pulp has been given considerable attention during recent years. It is recognized that a thorough removal of the soluble impurities is essential to minimize color reversion during the drying and storage of pulp or during wet storage *(46)*. Neither the coloring materials nor the alkali is readily removed from pulp, and, therefore, adequate soaking time must be given for the diffusion of these impurities into the water surrounding the fibers. A soaking period for 1 to 3 hours at a pulp consistency of 1 to 3% is desirable. In multistage bleaching the soluble impurities should be removed at the end of each stage. The quality of the wash water must be given careful consideration for each stage of the bleaching process.

Smith, Moore, and Chesley *(45)*, in a study of the effect of washing on sulphate pulp, found that pulp samples taken from the first washing after the final hypochlorite bleaching stage possessed as high strength characteristics as samples taken after additional washings. Additional washings, however, do result in less alum being required where it is being used to adjust the pH for sizing purposes. Loss in pulp strength occurs if an excess of alum (past the critical point) is added. With a thoroughly washed pulp the savings in alum may amount to 28 pounds per ton of stock. This is effected by a 3-hour soaking and corresponds to a reduction in the Prelinger oxygen number of about 3.5. To attain optimum control over operating conditions, both in bleaching and in stock preparation, serious consideration should be given to the indirect as well as the direct effects of residual organic matter and the mineral composition of the process water.

The effect of the type of bleach used on the sizing properties of sulphite pulp was studied by Burgstaller and Sonderhoff *(6)*. Flotation and pen-and-ink sizing tests on commercially bleached sulphite pulps, bleached with calcium hypochlorite, and also with chlorine water, showed that the former were more readily sized than the latter. This was confirmed by laboratory experiments. The sizing quality is correlated with the presence of more organic compounds in the hypochlorite bleached pulp than in the chlorine bleached pulp, from which these organic compounds are removed by treatment with a caustic soda solution.

Other Bleaching Agents

Logan *(26)* has a patented process of bleaching kraft and sulphite pulps by means of a mixture of chlorine and an aqueous solution of sodium chlorite, either alone or following a chlorination stage. The claim is made that this bleaching mixture avoids degradation of the cellulose normally incident to the use of conventional bleaching agents. Wenzl *(50)* refers to sodium chlorite as a mild bleaching agent, being especially suitable to pulps sensitive to oxidation. He cites data on the bleaching of beech pulps, using chlorine in the first stage, and either calcium hypochlorite or sodium chlorite in the second stage.

The production of a bleached sulphate pulp of maximum strength by means of sodium chlorite is the subject of a research report by Jayme and Mo *(20)*. Bleaching experiments on a spruce sulphate pulp containing 15.45% lignin were carried out in seven steps, the first four using sodium chlorite at 3% pulp consistency and 70 deg. C. The bleaching solution comprised 15% sodium chlorite and 2% acetic acid. The fifth stage was an alkaline wash with 1% sodium hydroxide. The last two used hypochlorite as the bleaching agent. Finally, the pulp was acidified with sulphur dioxide and washed. The yield was 78.6%. The average strength was 71.4% higher than that of the unbleached pulp. High strength values correspond to high alpha-cellulose content, low copper number, high viscosity and degree of polymerization, indicating practically no degradation of the cellulose during the cooking and bleaching operations. These results with chlorite bleaching stand out by contrast with the chlorine-hypochlorite bleaching of slash pine *(44)* where a high alpha-cellulose pulp gave inferior strength characteristics.

Recent claims *(2)* have been made that the use of sodium silicate in bleaching offers an economy in chlorine as high as 15%. Under present chlorine restrictions this statement assumes considerable significance. The application of 0.5% of Metso, the 5-hydrate metasilicate, per ton of pulp is stated to yield a marked saving in chlorine when compared to a bleach when Metso is not added. The question naturally arises as to what part the silicate plays in the bleaching process, whether it is simply a buffering action and, if so, would not sodium hydroxide do equally as well.

The use of titanium sulphate, or other compound where titanium possesses a valence less than four, in the bleaching of wood pulp has been patented by Bragg *(4)*. The titanium compound is added after the "chlorination action" of the bleaching agent is substantially completed. The alkaline mixture is then agitated to allow adequate contact with the air. The titanium compound is claimed to aid in the absorption of oxygen by the pulp.

Gröner *(13)* found that care must be exercised in the treatment of wood pulp with hydrogen peroxide, especially if the latter is highly purified.

The use of "ultrasan" to decrease the transmission of ultraviolet light through paper, resulting in an apparent brightening of the latter, is described by Cornely *(7)*, as abstracted in *Chemical Abstracts*. The nature of ultrasan was not revealed. According to a report in the *Journal of Chemical Education*, work on the bleaching of wood pulp by means of the oxides of nitrogen is being carried out at the Institute of Paper Chemistry *(11)*.

Pulp Purification

Especially prepared chemical wood pulp, purified and bleached, serves as the basic raw material for the manufacture of rayon and cellulose derivatives. According to Rue *(46)*, such "pulps are cooked under conditions which insure a greater degree of purity of cellulose than is customary for papermaking grades, and the purification and bleaching procedures are somewhat analogous to the more complicated multistage procedures for the bleaching of sulphate pulps." Purification usually precedes bleaching to minimize the degradation of the cellulose.

There have been several reports on the purification of pulps at low temperatures. Rys and Treka *(41)* report that pulp at a 5% consistence kept in 5% sodium hydroxide at —25 deg. C. for one hour gave a higher alpha-cellulose, with a smaller loss of yield than by hot purification. Viscosity tests indicated only slight degradation of the cellulose. A double freezing purification treatment gave improved results. The "frozen" pulp possessed a greater absorption capacity. Maksimov *(28)* states that the sequence of operations for the production of cellulose with a high alpha-cellulose content by the cold purification treatment are: *(a)* chlorination, *(b)* alkali treatment, *(c)* mercerization, *(d)* removal of the alkali, *(e)* bleaching, and *(f)* acidification. Cellulose purified by the cold method possesses high swelling ability, low specific gravity, high sorption, and is soft in texture.

A process of producing wood cellulose, patented by Olsen, Goff, and Sheldon *(30)*, comprises treating unbleached sulphite pulp with an amount of chlorine just sufficient to satisfy the demand of the ligneous material present. This amount of chlorine is 16% of the bleach value of the pulp. After 45 minutes' chlorination period, during which time the formed hydrochloric acid aids in the removal of ash constituents, sodium hydroxide is added. The pulp mixture is then heated to 100 deg. C. for 30 minutes, after which it is washed. Following is a hypochlorite bleach for two purposes: *(a)* to eliminate the residual, oxidizable material in the pulp, and *(b)* to adjust the viscosity of the cellulose to the proper level. The pH drop is from about 9.4 to 8.7, the lower limit being 8.0.

According to Richter *(37)* a bleached pulp of high solution viscosity and purity can be prepared by *(a)* partially bleaching with chlorine and washing, *(b)* treating with 6 to 12% caustic soda for 2 to 6 hours at 100 deg. C. and washing, *(c)* whitening the pulp with alkaline sodium hypochlorite at a temperature not exceeding 30 deg. C. and washing, and *(d)* further refining with caustic soda solution. Another method of purifying cellulose *(47)* consists of a pressure treatment with weak alkaline solutions, at a temperature independent of the pressure.

In a patented process *(33)* for the purification of sulphite pulp high in resinous content the material is treated with a dilute solution of sodium hydroxide and trisodium phosphate at such a concentration that the pH is not below 11. The mixture is stirred at 45 deg. C. Another process *(42)* for the treatment of resinous unbleached pulp in the manufacture of rayon pulp includes the use of chlorine water, followed by sodium hydroxide, washing, bleaching with a hypochlorite, and a final washing.

To manufacture a sulphite hardwood pulp of high purity and low resin content for conversion into cellulose derivatives, Richter *(36)* has a process of treating the fibers first with hypochlorite bleach liquor and washing the material. Then it is chlorinated, washed, and cooked at about 80 deg. C. for 2 to 6 hours in a 4% caustic soda solution containing 0.5% oleic acid. After washing, the pulp is treated with a distinctly alkaline hypochlorite bleach. Pulp treated in this manner is extremely white, possesses a lignin content less than 0.1%, a resin content (ether) 0.1-0.2%, and an alpha-cellulose content above 91%.

Pulp Testing

In a study of the action of the TAPPI permanganate number test, the Roe chlorine number test, and the Koon bleach consumption test, on sulphite pulp extracted with various solvents, Knight and Browning *(22)* reported that although the chemical reagents do not react in the same manner, there is reasonably close agreement. To facilitate correlation all bleachability tests should be expressed as oxidation equivalence, as, for instance, percentage available chlorine. They recommend that all bleachability tests should be carried out to a specified pulp brightness.

A laboratory bleaching procedure, closely paralleling the process of Richter and Schur, has been developed by Hoos *(43)* and comprises the following four steps: first, the pulp is treated with 75% of total chlorine requirement, as determined by the permanganate number, for 15 minutes at 4% consistency and 75 deg. F.; second, the chlorinated pulp is treated for 5 minutes with an excess of sulphur dioxide water, and then washed with distilled water. Following this step, 0.25% sodium hydroxide, based on the moisture-free pulp weight, is added. Third, the pulp is bleached with sodium hypochlorite at 100 deg. F., at 10% consistence, to a brightness of 88 (G. E. reflection meter). Sufficient sodium hydroxide is added so that the final pH is about 9. Lastly, the bleached stock is washed three times with distilled water by dilution to 2–3% consistence with each dilution, followed by a thickening to 10–12% consistence. The washed pulp is then soaked for 15 minutes in a slight excess of sulphur dioxide water and again washed three times as described.

According to Rich *(35)* the viscosity test is better suited to evaluate the effect of bleaching on pulp than any other test. An excessive lowering of the viscosity

after each bleaching stage results in paper with inferior strength properties. Viscosity during bleaching can be controlled by varying the pH, the temperature, and the time. In one mill the addition of 15 pounds of sodium hydroxide per ton of pulp maintained a pH above 8 during the hypochlorite bleaching stage.

Larson *(23)* has adapted the Klingstedt method for the determination of sulphur in pulp and paper to the determination of chlorine in unbleached and bleached pulps. The procedure also gives good results for the evaluation of sulphur and chlorine in bleaching waste liquors.

The packing density of mill bleached spruce sulphite pulp was reported by Croup and Samson *(9)* to be 10% higher than that of unbleached pulp, while a pulp bleached in the laboratory showed no difference. It is thought that the higher packing density effect observed with the mill bleached pulp is due chiefly to the usual mechanical action of the bleaching process.

There is need for a satisfactory method to measure the thoroughness of pulp washing, according to the results published in TAPPI Special Report 320 *(40)*. "Quality specifications for bleached pulps are constantly becoming more exacting. To meet them the methods of operating control must become increasingly accurate. At every step in the processing, removal of soluble impurities by thorough washing of the pulp is recognized essential." Most mills, as reported in the survey, are interested in a method for determining soluble organic matter as an indication of washing efficiency. The Prelinger iodate method has been employed for this purpose, although its shortcomings are well known. A number of mills consider washing efficiency of sufficient importance to justify research on the subject. Ostrowski *(31)* has a method of relating washing efficiency to pulp color.

In multistage bleaching it is necessary to know how the available chlorine, as chlorine or hypochlorite, should be proportioned among the various stages. In the TAPPI report *(40)* the statement is made that most mills use the TAPPI standard permanganate number, or some modification of it, for proportioning purposes. There must be some means of converting the test results to figures which indicate the proportions of chlorine or hypochlorite to be added in commercial operations. Some mills use factors, while others use a curve or a series of curves, depending on the types of pulps involved and results desired.

In agreement with the TAPPI report, Vincent *(48)* found that most mills in this country use the Wiles permanganate number (TAPPI Standard T 214 m) to indicate the bleachability of pulps. The resulting figures are converted into chlorine demand, chlorine number, or other unit. Present day confusion rests almost wholly on the value in which the permanganate number is expressed. It is hoped the time is not far distant when all such values will be given in terms of percentage *available chlorine*. Thus, strong domestic west coast pulps have bleachabilities ranging from 6 to 7% available chlorine; bleachable grade from 5 to 6, and the easy bleaching from 3.5 to 5. Scandinavian pulps run considerably higher in percentage bleachability for the strong, bleachable, and easy bleaching grades. If the pulp is used unbleached, then the bleachability figure is employed as a guide for strength and resistance to beating. It is possible to have two pulps of the same bleachabilities but possessing different strength characteristics.

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IMPORTS OF PAPER

NEW YORK IMPORTS

WEEK ENDING AUGUST 15, 1942

SUMMARY

Newsprint .....895 rolls

NEWSPRINT

——, ——, ——, ...278 rolls
——, ——, ——, ...306 rolls
——, ——, ——, ...311 rolls

RAGS, BAGGINGS, ETC.

——, ——, ——, ...4765 bls. cotton linters

BONES

——, ——, ——, ...830 bags
——, ——, ——, ...22313 bags
——, ——, ——, ...2455 bags
——, ——, ——, ...2714 bags

Garment Box Makers Make Denial

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 19, 1942 — General denial of all charges of a complaint issued by the Federal Trade Commission against Garment Box Manufacturers Association, its officials, and 23 member dealers engaged in the assembling and sale of garment boxes, is made in a joint answer filed by the respondents, all of New York City.

The complaint alleged that through the association the respondents, by means of a combination and conspiracy among themselves, fixed and maintained uniform prices for their products with the result that sales prices on garment boxes have been uniformly and simultaneously increased. The complaint charged that the respondents' practices have placed in them the power to control and enhance prices and create a monopoly in the sale of garment boxes in commerce.

The joint answer denies each of the allegations of the complaint and further declares that the respondents are not engaged in interstate commerce and that the activities alleged in the complaint do not come within the purview and scope of the Federal Trade Commission Act, the Sherman Act, or the Clayton Act.

The joint answer was filed by Garment Box Manufacturers Association and its officers and directors, Samuel Small, Daniel Bellin, Morris Bradhoff, Harry Siegel, Bernard N. Jaffee, and Henry Rosen; Chic Container Corporation, Excel Container Corporation, F & F Box Company, Gates Container Corporation, Gem Corrugated Box Corporation, Independent Container Corporation, Rainbow Container Corporation, Small Brothers Container Corporation, Solid Container Corporation, Spear Box Company, Inc., United Box Corporation, York Box and Paper Corporation, Phineas Beck, trading as Beck Container Company; J. Holman, Max Firsty, trading as M & F Box Company, Louis H. Clark, trading as Interboro Container Company, Samuel Goldstein and Abraham Goldstein, trading as Merit Container Company, Henry Rosen and Marvin A. Rosen, trading as Mutual Fibre Box Company, Jerome Rosen and Henry Rosen, trading as Quick Service Box Company, Irving Helsell, trading as Royal Corrugated Box Company, Joseph Barbash and Rose Barbash, trading as Sunshine Paper Box Company, and Samuel L. Wallerstein.

Bilt-Rite Box Corporation, also named in the complaint, in a separate answer makes general denial of the allegations and asserts that except for a negligible percentage of its total sales, it transacts no business in interstate commerce. During the time referred to in the complaint its business was conducted wholly in intrastate commerce, the answer avers.

A separate answer also was filed by Samuel L. Wallerstein, named in the complaint as manager of Garment Box Manufacturers Association, and who is alleged to have assisted the other respondents in carrying out the understandings and agreements. The answer also makes general denial of all allegations of the complaint and asserts that the respondents were not and are not engaged in interstate commerce.

Hearings will be held in due course.

To Stimulate Labor Ideas for Upping Production

CHICAGO, Aug. 17—In a move to speed the pace of war production, formal launching of a new organization to be called the National Association of Suggestion Systems was announced here recently with the election as president of E. S. Taylor, director of the Employe Suggestion System of the Pullman Company.

In a statement following a meeting at the Palmer House, Mr. Taylor explained that the association hopes that "by stimulating millions of employes throughout the United States to produce suggestions, we will go a long way toward winning the war."

The association will do everything possible to aid the production drive, he said, by encouraging the elimination of waste and the rewarding of employees for suggestions that will create better and more efficient methods of operation in factories, shops and offices.

Also elected at the meeting were F. A. Denz of the United Airlines, secretary, and H. C. Marmaduke of the Illinois Central Railroad, treasurer. Three directors chosen in addition to the officers are: H. W. Stinworth of Swift & Co.; F. R. Evers of the Public Service Company of Northern Illinois, and H. F. Foley of the Peoples Gas Light and Coke Company.

Granville P. Rogers Dead

Granville P. Rogers, former president and executive director of the Cup and Container Institute, Inc., 1790 Broadway, trade association, died recently at the New York Hospital, 525 East Sixty-eighth Street. He was sixty-two years old.

Mr. Rogers, who lived at Huntington, L. I., and 37-05 Seventy-ninth Street, Jackson Heights, Queens, resigned his position with the Cup and Container Institute a year ago because of ill health but remained on the institute's staff as a consultant until his death. He was head of the institute for eight years.

W. O. Crabtree Goes with Package Corp.

William O. Crabtree, until recently with the War Production Board in New York City, has joined the Package and Container Corporation, 52 Vanderbilt Avenue, as vice-president, in was announced last week. Prior to his work on the W. P. B., which started with the organization of the New York branch, Mr. Crabtree was president of Crabtree Refrigeration Corporation, Long Island City.

New York Paper and Pulp Market Review

Production and Demand For Paper Still Reflects Decline In Volume of Normal Trade—Pulp Market Easy—Cotton Cuttings Are Slow—Manila Rope Active—Demand For Paper Stock Improved.

Office of the PAPER TRADE JOURNAL,
Wednesday, August 19, 1942.

Little improvement in demand for paper and paper products is reflected in reports received from many manufacturers, representatives, jobbers, and general paper merchants during the current week. The average sales volume is still moderately good for the normally quiet month of August. Comparison with this date last year is somewhat misleading, as the normal buying wave created a very active and speculative paper market last year, with volume about 20% above the current level at this date.

The index of general business activity for the week ended August 8, declined to 132.0%, from 133.0% for the preceding week, compared with 130.8% for the corresponding week last year. Paper board output was 3.7% lower.

Paper production for the week ended August 8 was estimated at 81.6%, compared with 99.7% for 1941, with 89.8% for 1940, with 82.9% for 1939, and with 75.8% for the corresponding week for 1938.

Paper board production for the week ended August 8 was 75.0%, compared with 91.0% for 1941, with 74.0% for 1940, with 82.9% for 1939, and with 65.0% for the corresponding week for 1938.

The unfavorable current market situation is attributed in great part to the domestic curtailment in advertising and merchandising, due to the greater concentration of facilities to speed up the war effort. The accumulation of inventories in the heavy buying of paper last year has yet to be adjusted and it is expected in some quarters that a balance between production and orders is not likely to be effected much before October 1. With the war requiring so large a proportion of materials and manpower, the prospect for business this Fall is not very favorable and the last quarter of 1942 is expected to be well under the high rate of activity experienced in 1941.

Newsprint production was lower in July, the domestic output totaling 76,952 tons; shipments of 76,181 tons; compared with an output of 83,962 tons and shipments of 85,424 tons for July, 1941.

Although diversion of power is expected in some quarters to affect Canadian newsprint production in Quebec and Southern Ontario eventually, under the speeding up of the war effort, no definite authoritative information is now available, despite the various rumors in circulation.

Wood Pulp

An easy supply situation is reported to prevail in the chemical wood pulp market at this date, under the allocation plan directed by the War Production Board. Prices are unchanged.

Rags

Many mill inventories of papermaking rags are reported in some quarters to be sufficient to warrant the current buying practice of purchasing for only immediate needs. The supply situation is definitely easy, with prices in some grades soft.

Old Rope and Bagging

Mill buying of old Manila rope is reported steady, with prices well maintained, under the influence of the limited supply situation. Other grades of cordage and twine are less firm under a limited current demand.

Trading in scrap bagging has been relatively slow this week. Despite the limited supply of burlap, mill interest is not keen. Prices are unchanged.

Old Waste Paper

The paper stock market is reported more firm at this date under an improved demand for the lower grades. Mill consumption for June is reported some 77,247 tons less than for June, 1941.

Twine

No important change in prices or demand has been reported in the twine market this week. Prices are only moderately firm and under ceiling prices on most standard grades of hard and soft fiber twines.

Explains Power Shortage in Canada

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 17, 1942—With reference to the proposed diversion of power from paper plants located in older Ontario, where there is a definite power shortage, to more essential war industries, and the transfer of the paper making to mills located in newer Ontario, where there is plenty of electrical energy, Chairman of the Ontario Hydro Electric Power Commission Dr. Thomas Hogg, claims to have no knowledge whatever of such a diversion. Dr. Hogg emphasizes that such reports, so far as he is concerned, are entirely wrong. "It is a matter entirely in the hands of the power and newsprint controllers at Ottawa and is a federal matter," Dr. Hogg said. He also contradicted a report that when he conferred in Toronto last week with Mayor C. N. Ross of Fort William and C. H. Moore, chairman of the Fort William Hydro Commission, they discussed the newsprint distribution or the newsprint situation. Dr. Hogg said that the suggestion that an emergency conference of hydro commissions has been called at Fort William for August 20-21 is also wrong. It is just a regular annual meeting of the northern district of the Ontario Municipal Electric Association and was arranged months ago. "The meeting has no connection with the power shortage in eastern Canada and southern Ontario," he said. "It is simply a Hydro convention and has no tie-up with pulp and paper questions. Everybody knows there is a shortage of power in eastern Quebec and southern Ontario, and the problem will likely have to be taken up somehow and may result in a redistribution of newsprint production in Ontario. Some of this redistribution, if it occurs, may help the power situation," said Dr. Hogg, "But," he added, "I have no knowledge of where it will be applied."

STARCHES
DEXTRINES
SYRUP

FOR THE PAPER INDUSTRY

ANHEUSER-BUSCH, INC.
Corn Products Division
ST. LOUIS, MO.

● JUST A MINUTE, PLEASE!
UTILIZE WASTE MATERIALS
LET NOTHING USABLE GO TO WASTE

We "telegraph" you herewith a few facts about the Bauer double-disc pulper—a stock preparation unit that salvages waste material.

Two opposed rotating disc plates rub, roll and squeeze the fibers with little cutting and shortening action. Type of plate dependent upon kind of stock and results sought. Full range of plate patterns for both 36″ and 24″ size pulpers.

With Bauer pulpers some mills have greatly increased their beater capacity. Some have reduced furnish costs. Some have saved considerable power. Others have accomplished all three of these objectives *plus utilization of material ordinarily rejected, greatest advantage of all in these days of world stress.*

Now "telegraph" us for the rest, and we'll cite mills and cases. *The Bauer Bros. Company, Springfield, Ohio.*

SALVAGE WASTE PRODUCTS

The
BAUER BROS. CO.
SPRINGFIELD, OHIO

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL.
Wednesday, August 19, 1942.

BLANC FIXE—Prices on blanc fixe are firm and unchanged and conform to prevailing market levels. The pulp is currently quoted at $40 per ton, in barrels, at works; the powder is currently quoted at $60 per ton, f.o.b., works. Demand reported good for the week.

BLEACHING POWDER—Quotations on bleaching powder are firm. Demand reported moderate for the week. Bleaching powder is currently quoted at $2.25 per 100 pounds, in drums, at works.

CASEIN—Prices on casein are higher for the current week. Standard domestic casein, 20-30 mesh, is currently quoted at 16 cents per pound; 80-100 mesh, at 16½ cents per pound. All prices in bags, car lots. Argentina casein, 20-30 mesh, is currently offered at 10 cents per pound, c.i.f. No quotations on French casein.

CAUSTIC SODA—Quotations on caustic soda are firm and continue unchanged at prevailing market prices. Demand reported moderate. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, car lots, at works.

CHINA CLAY—Prices on china clay are firm and conform to prevailing market levels. Demand reported fair at this date. Domestic filler clay is currently quoted at from $7.50 to $15 per ton; coating clay at from $12 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Quotations on chlorine are firm and unchanged. Market strong. Government demand is reported heavy during the current week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported firm for the week with lower prices on some grades. "G" gum rosin is currently quoted at $2.84 per 100 pounds, in barrels, Savannah. "F" wood rosin is currently quoted at $2.84 per 100 pounds, in barrels, New York. Seventy per cent gum rosin size is quoted at $3.23 per 100 pounds, f.o.b., works.

SALT CAKE—Prices on salt cake are firm. Demand fair for the current week. Domestic salt cake is currently quoted at $15 per ton, in bulk; chrome salt cake at $16 per ton. All prices in car lots, f.o.b., shipping point. The quotation of $16 per ton on imported salt cake is nominal.

SODA ASH—Quotations on soda ash are firm and continue to conform to prevailing market levels. Demand reported fair for the week. Prices on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are firm and are reported unchanged for the current week. Pearl is currently quoted at $3.10 per 100 pounds; powdered starch at $3.20 per 100 pounds. All prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported light for the current week. The commercial grades are currently quoted at from $1.15 to $1.25; iron free at from $1.75 to $1.85 per 100 pounds. All prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and conform to prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are quoted at $18 per ton.

TALC—Quotations on talc are firm and continue unchanged at prevailing market prices. Domestic talc is currently quoted at from $15 to $21 per ton, at mines. No quotations on imported talc.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March 1942, showing quotations of actual shipments. will establish the current maximum prices.

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Carload Quantities Zone A, f.o.b. Mill			
Superstandard Wrapping	$5.00	@	—
No. 1 Wrapping	4.75	"	—
Standard Wrapping	4.50	"	—
Standard Bag	4.125	"	—
Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.05	"	—
White No. 1½	1.00	"	—
White No. 2	1.00	"	—
Anti-Tarnish M. G.	.95	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.35	"	—
Bleached, Jr.	2.65	"	—
Manila—per cwt.—C. l. f. a			
No. 1 Jute	11.25	@	—
No. 1 Manila Wrapping, 35 lb.	5.50	"	5.75
No. 2 Manila Wrapping, 35 lb.	5.25	"	5.50
Boards, per ton—			
News	*48.00	@	—
Chip	*45.00	"	—
Sgl. Mla. Lt. Chip	*60.00	"	—
White Pat. Coated	*75.00	"	—
Kraft Liners 50 lb.	*60.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5.; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$40.25@$47.25	$41.40@$48.50
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	32.20 " 37.75
75% Rag	24.75 " 29.00	25.90 " 30.50
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items. Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper.

Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@	$15.50
No. 2 Glossy Coated	12.40	"	14.00
No. 3 Glossy Coated	11.60	"	13.25
No. 4 Glossy Coated	11.15	"	12.75
No. 1 Antique (watermarked)	10.25	"	11.75
No. 2 Offset	9.60	"	11.00
A Grade E. F.	9.35	"	10.75
A Grade S. & S. C.	9.60	"	11.00
B Grade E. F.	8.85	"	10.25
B Grade S. & S. C.	9.10	"	10.50
C Grade E. F.	8.55	"	9.75
C Grade S. & S. C.	8.80	"	10.00
D Grade E. F.	8.25	"	9.50
D Grade S. & S. C.	8.50	"	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers Prices, Less Freight to Destination.

Bl. Softwood Sulphite	$76.00
Unbl. Softwood Sulphite	64.00@ 66.00
Bl. Hardwood Sulphite	73.50
Unbl. Hardwood Sulphite	63.50
Bl. Mitscherlich	81.00
Unbl. Mitscherlich	72.00
N. Bleached Sulphate	86.00
S. Bleached Sulphate	79.00
N. Semi-Bleached Sulphate	62.00
S. Semi-Bleached Sulphate	75.00
N. Unbl. Sulphate	73.00
S. Unbl. Sulphate	63.50
Bl. Soda	66.00
Unbl. Soda	62.00
Groundwood	46.00

Transportation Allowances Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$13.50
Lake Central	13.50
Southern	16.00
West Coast (in area)	10.50
West Coast (out area)	16.50

	50%-80% Air Dry Weight
Northeast	$11.50
Lake Central	11.50
Southern	14.00
West Coast (in area)	9.50
West Coast (out area)	15.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$8.50
Lake Central	8.50
Southern	11.00
West Coast (in area)	7.50
West Coast (out area)	13.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum price.

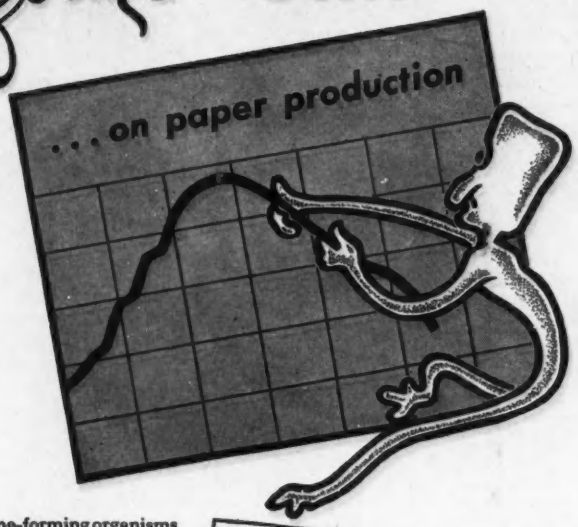
Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	8.00	@	8.25
Silesias No. 1	4.50	"	4.75
New Unbleached	8.00	"	8.25
Blue Overall	5.75	"	6.00
Fancy	3.00	"	3.25
Washables	2.50	"	2.75
Mixed Khaki Cuttings	2.50	"	2.75
O. D. Khaki Cuttings	3.00	"	3.15

BREAK Slimeform's* GRIP ... on paper production



Given even half a chance, slime-forming microorganisms are quick to create a serious barrier to smooth-running operations. These slime accumulations can tax production and lower profits more than you may realize. They show up in the form of plugged felts . . . blinded wires . . . obstructed lines . . . breaks and wash-up interruptions . . . spots, stains or pin holes in your finished product.

During these serious days of constant demand for peak production, Wallace & Tiernan water treatment methods can aid tremendously. Scientifically applied, a small amount of chlorine in the entering and circulating water will act quickly and effectively in eliminating microbiological growths. With the experience of more than 300 paper mills to guide them, W&T specialists will have no trouble putting their finger on your particular problem. Get in touch with Wallace & Tiernan today.

P-35

*Slime-forming organisms that thrive in process water

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"Microbiological Control in Pulp and Paper Manufacture" discusses latest practice now employed at prominent mills. Write for a copy of TP472.

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FRICTION CLUTCHES
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CENTRIFUGAL PUMPS
PROPELLER PUMPS
CLOGLESS PUMPS
MIXED-FLOW PUMPS
DE LAVAL IMO OIL PUMPS

Old Rags

White, No. 1—
Repacked ..... *3.80 " —
Miscellaneous ..... *3.20 " —

White, No. 2—
Repacked ..... *2.90 " —
Miscellaneous .... *2.65 " —

Third and Blues—
Repacked ..... *2.20 " —
Miscellaneous .... *1.80 " —

Roofing Rags—
No. 1 ..... *1.55 " —
No. 2 ..... *1.45 " —
No. 3 (bagging) ... *1.35 " —
No. 4 ..... *1.35 " —
No. 5A ..... *1.35 " —
Old Manila Rope .. 5.75 " —

*OPA Maximum Prices.

Foreign Rags

All prices nominal
New Rags

New Dark Cuttings .. 2.25 @ 2.40
New Mixed Cuttings. 2.00 " 2.20
New Light Silesias .. 5.50 " 5.75
Light Flannelettes ... 5.50 " 5.75
New White Cuttings. 7.00 " 7.50
New Light Oxfords. 4.00 " 4.50
New Light Prints ... 3.00 " 3.25

Old Rags

No. 1 White Linens. 7.50 " 8.50
No. 2 White Linens. 6.50 " 7.50
No. 3 White Linens. 4.50 " —
No. 4 White Linens. 2.25 " 3.25
No. 1 White Cotton. 4.25 " 4.75
No. 2 White Cotton. 3.25 " 3.75
No. 3 White Cotton. 2.50 " 3.00
No. 4 White Cotton. 1.90 " 2.20
Extra Light Prints .. 2.00 " 2.40
Ord. Light Prints ... 1.75 " 2.15
Med. Light Prints ... 1.55 " 1.95
Dutch Blue Cottons. 2.25 " 2.50
French Blue Linens. 3.00 " —
Checks and Blues ... 2.00 " —
Linsey Garments .... 1.90 " 2.00
Dark Cottons ..... 1.50 " 1.60
Old Shopperies ..... 1.30 " 1.45
New Shopperies ..... 1.45 " 1.50
French Blues ..... 2.25 " 2.50

BAGGING

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—
Foreign ..... Nominal
Domestic ..... 4.00 @ 4.25
Wool Tares, light .... 4.25 " 4.50
Wool Tares heavy .. 4.50 " 4.75
Bright Bagging ..... 4.50 " 4.85
Manila Rope—
Foreign ..... — " —
Domestic ..... *5.75 " —
Jute Threads ..... 4.25 " 4.75
Sisal Strings ..... 3.25 " 3.75
Mixed Strings .... 1.10 " 1.20

*OPA Maximum Price.

Old Waste Papers

(F. o. b. New York)
OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut ..... 3.37½ @ —
No. 1 Hard White Envelope Cuts ..... 3.12½ " —
No. 1 Hard White Shavings, unruled. 2.87½ " —
No. 1 Hard White Shavings, ruled ... 2.50 " —
Soft White Shavings, one cut ..... 2.87½ " —
No. 1 Soft White Shavings ..... 2.50 " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 Fly Leaf Shavings ..... 1.67½ " —
No. 2 Fly Leaf Shavings ..... 1.12½ " —
No. 1 Groundwood Fly Leaf Shavings 1.25 " —
No. 2 Mixed Groundwood Fly Leaf Shavings ..... .90 " —
Mixed Colored Shavings ..... .75 " —
Mixed Groundwood Colored Shavings .. .90 " —
Overissue Magazines ..... 1.67½ " —
No. 1 Heavy Books & Magazines ..... 1.57 " —
Mixed Books ..... 1.07½ " —
No. 1 White Ledger 2.17½ " —
No. 2 Mixed Ledger, colored ..... 1.87½ " —
New Manila Envelope Cuttings, one cut .. 2.87½ " —
New Manila Envelope Cuttings ..... 2.65 " —
Extra Manilas ..... 1.85 " —
Mixed Kraft, Env. & Bag Cuttings ..... 2.75 " —
Kraft Envelope Cuttings ..... 3.25 " —
Triple Sorted, No. 1 Brown Soft Kraft. 2.50 " —
New 100% Kraft Corrugated Cuttings .. 2.25 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
New Jute Corrugated Cuttings ..... 1.75 " —
Old Corrugated Containers ..... 1.00 " —
Box Board Cuttings. .72½ " —
White Blank News. 1.65 " —
Overissue News ..... .85 " —
No. 1 News ..... .75 " —
No. 1 Mixed Paper. .70 " —

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—
India ..... .21 @ —
White Hemp ..... .21 " —
Fine Polished—
Fine India ..... .26 " —
Unpolished—
Box ..... .17½ " —
Paper Makers ..... .17 " —
Tube Rope ..... .19 " —
Wall Paper ..... .20½ " —
Wrapping ..... .23 " —
Soft Fiber Rope ... .19 " —
Cotton ..... .25 " —

(Hard Fiber)

Medium Java ..... .18 " —
Mex. Sisal ..... .16 " —
Manila ..... — " —

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—
New White No. 1. .07½ @ .07½
New White No. 2. .04½ " .05
Light Silesias ..... .04½ " .04¾
Silesias, No. 1 .... .04 " .04¾
Black Silesias, soft .03¾ " .04
New Unbleached .. .07¾ " .07½
Washable Prints ... .03¾ " .03½
Washable No. 1 .. .02 " .02¾
Blue Overall ..... .04½ " .05½
Cottons—According to grades—
Washable shredding — " .01¾
Fancy Percales .... .03¾ " .03½
New Black Soft ... .02¾ " .03
New Dark Seconds 1.75 " 2.00
Khaki Cuttings—
No. 1 O. D. ..... .03 " .03½
No. 2 Mixed ..... .02¾ " .02½
Corduroy ..... .01¾ " .02¾
New Canvas ..... .04¾ " .05¼
New Black Mixed. — " .02¾

Domestic Rags (Old)

White No. 1—Repacked ..... 3.80 " —
White No. 2—Repacked ..... 2.90 " —
Miscellaneous No. 1. 3.20 " —
Miscellaneous No. 2. 2.65 " —
Thirds and Blues—
Miscellaneous .... 1.80 " —
Repacked ..... 2.20 " —
Black Stockings—
(Export) ..... Nominal
Roofing Stock—
Foreign No. 1 ..... Nominal
Domestic No. 1 ... 1.55 " —
Domestic No. 2 ... 1.45 " —
Roofing Bagging .. 1.35 " —
Old Manila Rope ... 5.75 " —

Bagging

(F. o. b. Phila.)

Gunny No. 1—
Foreign ..... Nominal
Domestic ..... 3.00 " 3.50
Sisal Rope ..... 3.75 " —
Mixed Rope ..... .75 " 1.00
Scrap—
No. 1 ..... 3.25 " 3.50
No. 2 ..... 1.75 " 1.80
Wool Tares, heavy ... 4.00 " 4.25
No. 1 New Light Burlap ..... 3.00 " 4.00
New Burlap Cuttings 3.75 " 4.00

Old Papers

(F. o. b. Phila.)
OPA Maximum Prices

No. 1 Hard White Envelope Cuts, one cut ..... 3.37½ " —
No. 1 Hard White Shavings, unruled .. 2.50 " —
Soft White Shavings, one cut ..... 2.87½ " —
White Blank News .. 1.65 " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 White Ledger. 2.17½ " —
No. 2 Ledger, colored 1.87½ " —
No. 1 Heavy Books & Magazines ..... 1.57 " —
Overissue Magazines 1.67½ " —
New Manila Envelope Cuttings ..... 2.65 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
No. 1 Mixed Paper. .70 " —
Box Board Cuttings. .72½ " —
Jute Corrugated Cuttings ..... .90 " —
Overissue News ..... .85 " —
No. 1 News ..... 1.00 " —

BOSTON

Old Papers

(F. o. b. Boston)
OPA Maximum Prices

No. 1 Hard White Shavings, unruled. 2.87½ @ —
No. 1 Hard White Shavings, ruled ... 2.50 " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 Fly Leaf Shavings ..... 1.67½ " —
No. 2 Fly Leaf Shavings ..... 1.12½ " —
No. 1 Groundwood Fly Leaf Shavings 1.25 " —
No. 2 Groundwood Fly Leaf Shavings .90 " —
Mixed Colored Shavings ..... .75 " —
New Manila Envelope Cuts, one cut ..... 2.87½ " —
Hard White Envelope Cuts, one cut ..... 3.37½ " —
Triple Sorted No. 1 Brown Soft Kraft. 2.50 " —
Mixed Kraft Env. & Bag Cuttings ..... 2.75 " —
Kraft Envelope Cuttings ..... 3.25 " —
No. 1 Heavy Books & Magazines ..... 1.57 " —
New Manila Envelope Cuts, one cut ..... 2.87½ " —
New Manila Envelope Cuttings ..... 2.65 " —
White Blank News .. 1.65 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
No. 1 Mixed Paper. .70 " —
Overissue News ..... .85 " —
Box Board Cuttings. .72½ " —
New Corrugated Cuttings, Kraft ..... 2.25 " —
Old Corrugated Containers ..... 1.00 " —
Jute Corrugated Cuttings ..... 1.07½ " —
Soft White Shavings, Misc. ..... 2.15 " —
No. 1 White Ledger. 2.17½ " —
No. 2 Ledger, colored 1.87½ " —
No. 1 Heavy Books & Magazines ..... 1.57 " —
Overissue Magazines 1.67½ " —
New Manila Envelope Cuttings ..... 2.65 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
No. 1 Mixed Paper. .70 " —
Box Board Cuttings. .72½ " —
Jute Corrugated Cuttings ..... .90 " —
Overissue News ..... .85 " —
No. 1 News ..... 1.00 " —

Bagging

(F. o. b. Boston)

Gunny Bagging—
Foreign ..... (nominal)
Domestic ..... 4.25 @ 4.50
Sisal Rope ..... 4.75 " 5.00
Mixed Rope ..... 1.25 " 1.40
Transmission Rope—
Foreign ..... (nominal)
Domestic ..... 4.00 " 4.25
Manila Rope—
Foreign ..... (nominal)
Domestic ..... 5.75 " —
Soft Jute Rope ..... 5.25 " 5.50
Jute Carpet Threads. 3.25 " 3.50
Bleachery Burlap .... 8.50 " 9.00
Scrap Burlap—
Foreign ..... (nominal)
Domestic ..... 4.50 " —
Scrap Sisal ..... 4.75 " 5.00
Scrap Sisal for Shredding ..... 5.00 " 5.25
Wool Tares—
Foreign ..... (nominal)
Domestic ..... 5.00 " 5.75
Aust. Wool Pouches. 4.75 " 5.00
New Burlap Cuttings 5.25 " 5.50
Heavy Baling Bagging 4.75 " 5.00
Paper Mill Bagging .. 3.00 " 3.25
No. 2 Bagging ..... 1.35 " —*

*OPA Maximum Price.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—
New Light Prints. .04½ @ .04¾
Fancy Percales .... .04¾ " .05
New White No. 1. .06½ " .07
New Light Flannelettes ..... .06 " .06¼
Canton Flannel, Bleached ..... .06½ " .07
Underwear Cutters, Bleached ..... .06½ " .06¾
Underwear Cutters, Unbleached ..... 6.50 " 6.75
Silesias No. 1 ..... .06 " .06¾
New Black Silesias .. .03¾ " .04
Red Cotton Cuttings .03¾ " .04
Soft Unbleached ..... .07 " .07¼
Blue Cheviots ..... .06 " —
Fancy ..... .02¾ " —
Washable ..... .02¾ " —
Khaki Cuttings ..... .03¾ " .04
O. D. Khaki ..... .04½ " .04¾
Corduroy ..... .03½ " .03¾
New Canvas ..... .07 " .07½
B. V. D. Cuttings ... .07¾ " .08

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—
Repacked ..... 3.80 @ —*
Miscellaneous .... 3.20 " —*
White No. 2—
Miscellaneous .... 2.65 " —*
Twos and Blues, Repacked ..... 2.20 " —*
Old Blue Overalls ... 2.25 " 2.50
Thirds and Blues, Repacked ..... 2.20 " —*
Miscellaneous ..... 1.80 " —*
Black Stockings ..... 3.50 " 4.00
Roofing Stock—
No. 1 ..... 1.55 " —*
No. 2 ..... 1.45 " —*
No. 3 ..... 1.35 " —*
No. 4 ..... 1.35 " —*
No. 5, Quality A .. 1.35 " —*
Quality B .. 1.20 " —*
Quality C .. .95 " —*
Old Manila Rope .. 5.75 " —

*OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas ..... (nominal)
Dark Cottons ..... (nominal)
Dutch Blues ..... (nominal)
New Checks and Blues (nominal)
Old Fustians ..... (nominal)
Old Linsey Garments. (nominal)
New Silesias ..... (nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)
OPA Maximum Prices.

Shavings—
No. 1 Hard White Envelope Cuts, one cut ..... 3.37½ " —
No. 1 Hard White Shavings, unruled. 2.50 " —
No. 1 Soft White Shavings ..... 2.50 " —
No. 1 White Ledger 2.17½ " —
No. 1 Heavy Books & Magazines ..... 1.57 " —
White Blank News .. 1.65 " —
Mixed Kraft Env. & Bag Cuttings .. 2.75 " —
No. 1 Assorted Old Kraft ..... 1.75 " —
Overissue News ..... .85 " —
No. 1 News ..... .75 " —
No. 1 Mixed Paper .. .70 " —
No. 1 Roofing Rags .. 1.55 " —
No. 2 Roofing Rags .. 1.45 " —